

# **CMF® MONITOR**

## **Online User Guide**

**Version 5.5**

**June 30, 2003**



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### **United States and Canada**

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## Customer Support

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You can obtain technical support from BMC Software 24 hours a day, 7 days a week at <http://www.bmc.com/support.html>. From this Web site, you can

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- find the most current information about BMC Software products
- search a database for problems similar to yours and possible solutions
- order or download product documentation
- report a problem or ask a question
- subscribe to receive e-mail notices when new product versions are released
- find worldwide BMC Software support center locations and contact information, including e-mail addresses, fax numbers, and telephone numbers

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### Before Contacting BMC Software

Before you contact BMC Software, have the following information available so that Customer Support can begin working on your problem immediately:

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  - product version (release number)
  - license number and password (trial or permanent)
- operating system and environment information
  - machine type
  - operating system type, version, and service pack or other maintenance level such as PUT or PTF
  - system hardware configuration
  - serial numbers
  - related software (database, application, and communication) including type, version, and service pack or maintenance level
- sequence of events leading to the problem
- commands and options that you used
- messages received (and the time and date that you received them)
  - product error messages
  - messages from the operating system, such as `file system full`
  - messages from related software

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# About This Book

This book explains how you can use the views and utilities of the CMF MONITOR Online component of CMF MONITOR. CMF MONITOR has additional components, which are not covered in this book. For information about the other CMF MONITOR components, see “Related Reading” on page x.

This book is written for data center operators, managers, and system programmers who monitor system performance and need realtime or historical data about workloads, delays, devices, and resource usage.

If you also have MAINVIEW for OS/390 installed, you do not need to read this book. See the MAINVIEW for OS/390 *User Guide and Reference*.

## How This Book Is Organized

The information in this document is divided as follows:

Description	Contents
Provides an overview of the CMF MONITOR Online component and explains how to access CMF MONITOR Online and the CMF MONITOR utilities.	Chapter 1, “Understanding CMF MONITOR Online”
Contains information about using the CMF MONITOR Online utilities, using CMF MONITOR Online to solve performance problems, generating and managing batch reports, graphing CMF MONITOR Online data, and solving potential CMF MONITOR Online problems.	Chapter 2, “Using CMF MONITOR Extractor Utilities”
	Chapter 3, “Using CMF MONITOR Online to Solve Problems”
	Chapter 4, “Generating and Managing Batch Reports”
	Chapter 5, “Graphing Your Data”
	Chapter 6, “Before Calling Customer Support”

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## Related Reading

This document discusses how to use the CMF MONITOR utilities and CMF MONITOR Online views.

Task(s)	Book Title	Book Description
Getting to know MAINVIEW	<i>Using MAINVIEW</i>	Explains MAINVIEW architecture and the integration of the MAINVIEW family of products.
	<i>Quick Start with MAINVIEW</i>	Introduces the MAINVIEW family of products and lists the commands used to manage the MAINVIEW windows environment.
Installing, customizing, and maintaining CMF MONITOR	<i>OS/390 and z/OS Installer Guide</i>	Explains how to download product tape components and access AutoCustomization.
	<i>MAINVIEW Common Customization Guide</i>	Explains how to perform the manual customization steps (if you do not use AutoCustomization) that are common to all MAINVIEW products. Explains administration tasks that are associated with the MAINVIEW architecture.
	<i>MAINVIEW Administration Guide</i>	
	<i>CMF MONITOR Customization Guide</i>	Explains how to perform the manual customization steps that are specific to CMF MONITOR. Describes the allocation of output data sets for the CMF MONITOR Extractor.
Using CMF MONITOR Online	<i>CMF MONITOR Online Getting Started</i>	Provides a step-by-step tutorial for using CMF MONITOR Online and the MAINVIEW window interface.
	<i>MAINVIEW Command List</i>	Lists MAINVIEW window interface commands available for CMF MONITOR Online.
Using CMF MONITOR batch components	<i>CMF MONITOR Batch User Guide</i>	Explains how to use the Extractor and Analyzer components and how to interpret the report information.
	<i>CMF MONITOR Batch Reference Guide</i>	Provides a quick reference guide for CMF MONITOR's Extractor and Analyzer.
Using CMF MONITOR CMFMON component	<i>CMF MONITOR CMFMON User Guide</i>	Explains how to use CMFMON's online facility and write facility to create and report on SMF type 79 records.
Using DSO	<i>DSO User Guide and Reference</i>	Explains how to use the DSO batch report control statements and how to interpret the report information.

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## Other BMC Software Product Documents

Other BMC Software products use CMF MONITOR to gather data for their reports and displays:

Product	Book Titles
MAINVIEW for OS/390	<ul style="list-style-type: none"><li>• <i>Getting Started with MAINVIEW for OS/390</i></li><li>• <i>MAINVIEW for OS/390 User Guide and Reference</i></li></ul>

## Online and Printed Books

The books that accompany BMC Software products are available in online format and printed format. If you are a Windows or Unix user, you can view online books with Acrobat Reader from Adobe Systems.

### To Access Online Books

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In some cases, installation of Acrobat Reader and downloading the online books is an optional part of the product-installation process. For information about downloading the free reader from the Web, go to the Adobe Systems site at <http://www.adobe.com>.

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BMC Software provides printed books with your product order. To request additional books, go to [http://www.bmc.com/support\\_home](http://www.bmc.com/support_home).

## Online Help

The CMF MONITOR product includes online Help. In the CMF MONITOR ISPF interface, you can access Help by pressing **F1** from any ISPF panel.

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To access the Messages & Codes application from any CMF MONITOR panel, type **MSG** on the **COMMAND** line.

## Release Notes and Other Notices

Printed release notes accompany each BMC Software product. Release notes provide current information such as

- updates to the installation instructions
- last-minute product information

In addition, BMC Software sometimes provides updated product information between releases (in the form of a flash or a technical bulletin, for example). The latest versions of the release notes and other notices are available on the Web at [http://www.bmc.com/support\\_home](http://www.bmc.com/support_home).

## Conventions Used in This Book

This section documents the syntax and punctuation conventions used throughout this book.

## Terminology Used to Explain Commands

The MAINVIEW window interface copies the PF key assignments associated with your user ID when you first access the MAINVIEW window interface. While some references are made to specific PF key assignments, the phrase “Issue the command...” is sometimes used instead. This specifies that a command be issued by whatever means is appropriate. For example, instead of instructing you to “press PF1 for help,” this book may instruct you to “issue the HELP command for help.”

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# Command Syntax Notation

The following syntax notation is used in this book to explain the format of commands.

## Syntax Notation

Text font changes indicate special values or conditions. The fonts used in this book to indicate special values or conditions are as follows:

Notation	Meaning
UPPERCASE letters	Uppercase letters indicate options you can enter in the <code>OPTION</code> field of a panel.
UPPERCASE and lowercase letters combined	<p>Words in a combination of uppercase and lowercase letters are command names. The uppercase characters show the abbreviation for the command; the lowercase letters are optional.</p> <p>When issuing the command, you must enter at least the characters shown in uppercase. You can enter as many of the additional characters (shown in lowercase) as you want.</p> <p>For example, to enter the horizontal split command, you must enter the letters <code>HS</code>; however, the remaining letters, <code>plit</code>, are optional:</p> <p><b><code>HSplit</code></b></p>
<i>Italicized</i> characters	<p>Italicized characters indicate a required variable; for example:</p> <p><b><code>CONTEXT</code></b> <i>name</i></p> <p>You must supply the variable for the command to be executed successfully.</p>
<i>{Italicized}</i> characters in braces	<p>Italicized characters in braces indicate an option variable; for example:</p> <p><b><code>ASU</code></b> <i>{nnn}</i></p> <p>In this example, <i>nnn</i> represents a variable that you can supply but are not required to supply.</p>

## Parameters

A command can have

- No parameters
- One parameter
- Multiple parameters

The first parameter is separated from the command by one or more blanks.

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When a command has multiple parameters, they are listed consecutively.

Parameter	Description
Keyword	<p>A value or parenthesized list of values preceded by a keyword= clause; for example:</p> <p><b>keyword=value</b></p> <p><b>or</b></p> <p><b>keyword=(value1,...,valuen)</b></p>
Positional	<ul style="list-style-type: none"><li>• Is interpreted by its position in the parameter list with respect to other positional parameters.</li><li>• Can be preceded by any number of keyword parameters, but must retain its position in regard to any preceding positional parameters.</li><li>• Must have an asterisk to mark its placement in the parameter list, even when you want the default.</li></ul>

## Special Characters

Special characters are entered exactly as they appear. The special characters used in MAINVIEW window interface command notation are as follows:

<b>. (period)</b>	<p><b>Use a period (.) to direct a command to a specific window without changing the default window specification. For example, WFLOW;W2.JFLOW causes</b></p> <p><b>The command WFLOW to be issued in the default window.</b></p> <p><b>The command JFLOW to be issued to window 2 without changing the default window specification.</b></p>
<b>;(semicolon)</b>	<p>Use a <b>semicolon (;)</b> to separate two or more independent commands. For example, entering the commands WFLOW;W2;JFLOW causes</p> <ul style="list-style-type: none"><li>• WFLOW to be issued in the default (current) window.</li><li>• The default window to be changed to window 2.</li><li>• The command JFLOW to be issued in window 2 (the new default window).</li></ul> <p>Note: A semicolon is the ISPF default delimiter for command stacking. If you used ISPF option 0 to change the default, the special character you specified for command stacking also applies to the MAINVIEW window interface and operates in the same manner as the semicolon that is used in the examples throughout this book.</p>
<b>? (question mark)</b>	<p>Use a <b>question mark</b> as a wildcard character for a single character in a particular position; for example:</p> <p><b>04?0</b></p> <p>In this example, information about devices 0400, 0410, 0420, and so on through device 04F0, is displayed.</p>

* (asterisk)	<p>Use an <b>asterisk</b>:</p> <ul style="list-style-type: none"> <li>As a wildcard character for any character in that position and all the positions that follow it; for example:</li> </ul> <p style="text-align: center;"><b>W3.JFLOWS LGS*</b></p> <p>In this example, any job with the letters <b>LGS</b> as its first three characters is displayed.</p> <ul style="list-style-type: none"> <li>With the CONtext command to specify the current system to which you logged on, or with the TIME command to specify the current time; for example:</li> </ul> <p style="text-align: center;"><b>TIME * * 2i</b></p> <p>In this example, two intervals of data, ending with the current time, are displayed, regardless of the previously specified time frame.</p>
= (equal sign)	<p>Use an <b>equal sign</b> with the CONtext command to specify the context currently active in the window, or with the TIME command to retain the currently-specified time frame; for example, if you are currently using CMF with the SSI context of ALL and you need to look at the PLEXOVER view in the PLEXMGR product, you would type the following:</p> <p style="text-align: center;"><b>CONtext = PLEXMGR;PLEXOVER</b></p> <p>The = (equal sign) allows you to retain the context of ALL.</p>

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# **Chapter 1      Understanding CMF MONITOR Online**

CMF MONITOR Online is a component of BMC Software Comprehensive Management Facility (CMF). CMF MONITOR Online monitors workloads, resources, and devices and their delay activities, and provides you with the data you need to manage your system and improve your system's performance. CMF MONITOR Online employs the MAINVIEW window interface to provide easy, intuitive access to all the system performance data you need.

To use CMF MONITOR Online to its fullest advantage, you should have a good understanding of some of the key concepts and terms that pertain to all aspects of using the product. This chapter provides you with the background information you need.

## **Entering and Exiting CMF MONITOR Online**

This section explains how to access CMF MONITOR Online from the MAINVIEW Selection Menu.

## Logging On to CMF MONITOR Online

- Step 1 If your ISPF main menu contains an option for MAINVIEW products, select that option<sup>1</sup>.

Alternatively, you can type **TSO MAINVIEW** from any ISPF panel. (MAINVIEW is a CLIST that you or your product administrator created during AutoCustomization.)

The MAINVIEW Selection Menu is displayed. (See Figure 1-1.)

**Figure 1-1**      **MAINVIEW Selection Menu**

```
----- MAINVIEW Selection Menu -----
OPTION  ==>                                DATE  -- YY/MM/DD
                                           TIME  -- 14:20:55
                                           USERID -- BCVAXT1
                                           MODE  -- ISPF 4.8

      0  Parameters and Options
      E  Alerts and Alarms
      P  PLEX Management (PLEXMGR)
      U  Utilities, Tools, and Messages

Solutions for:
  A  Automated Operations
  C  CICS
  D  DB2
  I  IMS
  L  Linux
  N  Network Management
  S  Storage Management
  T  Application Management and Performance Tuning
  W  WebSphere and MQSeries
  Z  OS/390, z/OS, and USS
```

**Note:** You can change the format of the date displayed on views by selecting Option 0 on the MAINVIEW Selection Menu, selecting Option 1 on the Terminal Session Parameter Select Menu, and then selecting Option 4 on the MAINVIEW Parameter Editors Menu.

Your MAINVIEW user profile may be configured so that you bypass the MAINVIEW Selection Menu upon entry into the MAINVIEW environment. For information about configuring your user profile or for detailed instructions about accessing the MAINVIEW Selection Menu, see the *MAINVIEW Common Customization Guide*.

You can also set some user session parameters with Option 0. Issue the **HELP** command and use the online help if you need assistance.

- Step 2 Type **Z** in the **Option** field to select OS/390, z/OS, and USS.
- Step 3 The OS/390, z/OS, and USS Solutions Menu is displayed. (See Figure 1-2)

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<sup>1</sup>If you are using MAINVIEW Alternate Access, see the *MAINVIEW Alternate Access Implementation and User Guide* for information on how to access CMF MONITOR Online.

**Figure 1-2 OS/390, z/OS, and USS Solutions Menu**

---

----- OS/390, z/OS, and USS Solutions -----			DATE -- YY/MM/DD
OPTION ==>			TIME -- 14:22
			USERID -- BCVAXT1
			MODE -- ISPF 4.8
Performance			
1	MV390	MAINVIEW for OS/390	
2	MVUSS	MAINVIEW for Unix System Services	
3	CMF	CMF MONITOR	
4	SYSPROG	MAINVIEW SYSPROG Services	
Operations			
5	CSMON	Common Storage Monitor	
6	CMFMON	CMFMON realtime analysis	
7	CMFUTIL	CMF Extractor Online Utilities	
8	ANALYZER	Generate CMF Analyzer batch reports	
E	ALERTS	Alert Management	
General Services			
M	MESSAGES	Messages and Codes	
P	PARMS	Parameters and Options	

---

Step 4 Type 3 in the **Option** field to select CMF.

You will see one of the following screens displayed:

- The ISPF Session Control Parameters panel, as shown in Figure 1-3.
- The EZM390 Menu, as shown in Figure 1-4 on page 1-4.
- A screen definition created by your product administrator.

**Note:** For information about Option 6 - CMFMON, see the *CMF MONITOR CMFMON User Guide*.  
 For information about Option 8 - ANALYZER, see the *CMF MONITOR Batch User Guide*.  
 For information about any of the **Utilities** options, see “Using CMF MONITOR Extractor Utilities” on page 2-1.

## ISPF Session Control Parameters Panel

The ISPF Session Control Parameters panel looks like this:

**Figure 1-3 ISPF Session Control Parameters Panel**

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----- SESSION CONTROL PARAMETERS -----		
COMMAND ==>		
Subsystem ID	==> CASB	(Coordinating Address Space subsystem ID)
XDM mode	==> NO	(Execute session in diagnostic mode, Yes/No)
Press Enter to confirm use of session parameters entered above.		

---

In this panel, make sure the Subsystem ID field contains the coordinating address space (CAS) identifier, and then press **Enter**. If you do not know the name of this identifier or if you get an error message after pressing Enter, see your CMF MONITOR Online product administrator.

When you see the message Connecting... in the upper right corner of your screen, that means you are in the process of accessing CMF MONITOR Online.

## EZM390 Menu

The EZM390 Menu looks like this:

**Figure 1-4 OS/390 Easy Menu (EZM390)**

```

DDMMYYYY 14:32:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =EZM390=====CXTSTJ====*=====DDMMYYYY==14:29:50===CMF=====1

                                OS/390 Easy Menu
Activity          Time frame - Interval      Utilities
> System Overview +-----+ > SYSPROG Services
> Jobs            | Place cursor on | . Program and I/O Trace
> Devices         | menu item and  | > Data Compression
> Data Set Usage  | press ENTER   | > Alarm Management
> Storage         +-----+ > OS/390 Fast Menu
> XCF Monitoring  | > RMF-like Menus
> Coupling Facility > Environment Settings
> WLM Workloads   | . Return...
> Non-WLM Workloads

```

## MVS Easy Menu

To select an option from EZM390, move your cursor to the desired option and press **Enter**. For details on using the Easy Menus, see “Using CMF MONITOR Online Easy Menus” on page 3-1.

## Exiting CMF MONITOR Online

Step 1 On any CMF MONITOR Online display, type **Quit** in the **COMMAND** field.

The MAINVIEW for OS/390 panel is shown.

Step 2 Press PF3 until you return to the MAINVIEW Selection Menu.

## How the Information Is Displayed

CMF MONITOR Online displays the information it gathers in a *view*. When you display a view, what you see is a set of rows and columns that presents data on a particular topic in tabular form. Here is what you do not see: when a view is selected for display, a structured query is executed against CMF MONITOR Online's collection of data to retrieve the relevant information. The data is then formatted according to the associated set of instructions for the selected view.

With CMF MONITOR Online, you can change a view's format—or *form*—without affecting its underlying query. For information on how this is accomplished, type **HELP FORM** in any MAINVIEW **COMMAND** field.

CMF MONITOR Online provides over 50 views, each focusing on a different aspect of system performance.

## Understanding the MAINVIEW Window Interface

All MAINVIEW products employ either the MAINVIEW window interface or the MAINVIEW standard ISPF panel interface (or a combination of both). CMF MONITOR Online operates primarily in the window environment.

In the MAINVIEW window environment, each view is displayed in its own *window*. A window begins with a *window information line*, which tells you, among other things, the number and status of the window; the name of the view; the system, date, and time reflected by the view; and the name of the MAINVIEW product you are currently using. The window information line looks like this:

```
W1 =DEV=====SYSB=====*****10JUN2003==11:38:17====CMF=====224
```

For information on any of these fields, place the cursor on the field and press PF1 (HELP).

Everything below this line, where the DEV view appears, is called the *display area*.

The top three lines of the MAINVIEW window interface are called the *window control area*. The window control area looks like this:

```
10JUN2003 11:38:17 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ===>                                SCROLL ===> PAGE
CURR WIN ===> 1          ALT WIN ===>
```

- The first line of the window control area consists of the MAINVIEW Window Interface line (which contains the current date and time).

- The second line of the window control area consists of the **COMMAND** field and the **SCROLL** field.
- The third line of the window control area consists of the **CURR WIN** (current window) field and the **ALT WIN** (alternate window) field. For information on these fields, place the cursor in the input area and press PF1.

## Available Views

Four kinds of views are available in MAINVIEW products:

- *Menu views*, which allow you to hyperlink to other views. Some menus hyperlink to views that display information about your system; some menus hyperlink to more specific views or menus that allow you to zero in on the information you need.
- *Tabular views*, which are simply rows and columns of data. Each field in a given row addresses the same job, workload, or resource. Most views are tabular.
- *Detail views*, which provide detailed information on a particular job or resource. The fields in a detail view are elements from a single row in a data table. DEVINFO, LCUINFO, and PGDINFO are examples of detail views. The names of default detail views included with CMF MONITOR Online end with the letters INFO.
- *Summary views*, which compress several rows of data into a single row based on certain criteria. For example, a summary view focusing on LCU performance might compress the **Channel path** field so that each channel path is represented by a single row of data. DEVZ, JDELAYZ, and WFLOWZ are examples of summary views. The names of most default summary views included with CMF MONITOR Online end with the letter Z. Summary views can also be created from tabular views using a view customization option called SUMMARIZE. For more information, go to view customization by typing **CUST** in the **COMMAND** field, and then type **HELP Z** in the **OPTION** field.

CMF MONITOR Online provides tabular, detail, and summary views to help you monitor discrete areas of system activity.

## Customize Views and Help Text to Meet Your Needs

One of the primary advantages of the CMF MONITOR Online window interface is the ability to customize all views and help text to meet the particular needs of your installation.

**Note:** Certain menu views, such as MAIN and CFMON, cannot be customized.

**View Customization:** With MAINVIEW view customization facility, you can

- Sort any row or column in a view
- Rearrange columns
- Graph the data
- Modify the view so that certain columns are completely hidden, thus displaying only the data you need.

This is only a partial list. The view customization facility is entered by typing **CUSTom** in the **COMMAND** field.

For explicit instructions on how to customize CMF MONITOR Online views, type **HELP CUSTOM** in the **COMMAND** field.

**Help Text Customization:** To create your own help text, store your help text in your own private help text library, or make it accessible to all CMF MONITOR Online users at your site, see the *MAINVIEW Administration Guide*.

## Using Online Help

You can find out how to use the functions and commands of the MAINVIEW Window Interface by using the online help facility.

The following table describes the different types of online help available:

**Table 1-1 Online Help**

To display this	Do this
Help on a view	Place the cursor on the view name on the window information line and press PF1. Alternatively, type <b>HELP view-name</b> in the <b>COMMAND</b> field. View help displays other topics that tell you which parameters are currently in effect, which fields are included and excluded within the view, which fields have hyperlinks and to where, and so on.
Help on a field that appears on a view	Place the cursor on the field and press PF1.
Help on a field on the window information line	Place the cursor on the field and press PF1.
Help on a command or topic pertaining to the MAINVIEW window interface itself	Type <b>HELP topic id</b> in the <b>COMMAND</b> field, where <b>topic id</b> is the ID of the command as listed in the <i>MAINVIEW Command List</i> . Alternatively, place the cursor in the <b>COMMAND</b> field and press PF1 to display the MAINVIEW help tutorial. Type <b>INDEX</b> to display a list of topics, or use the hyperlinks dispersed throughout the tutorial to move between topics.

## Navigating in CMF MONITOR Online

So far you have learned that CMF MONITOR Online displays the information it collects in the form of views.

There are three methods of displaying these views and for displaying the rest of the services provided by CMF MONITOR Online:

- Hyperlinks
- Menus
- Commands

Once you become comfortable with each method, you will most likely find that using them in combination affords you the greatest degree of flexibility and control.



# Using Hyperlinks

A *hyperlink* is a way of executing a command without explicitly entering it. You can think of a hyperlink as simply a fast path to another view or command. When you place your cursor on a field for which a hyperlink exists and press **Enter**, the underlying command is executed and its output displayed. In most cases, this output is another view. In a different color. On monochrome terminals, hyperlinked fields appear in high intensity.

All MAINVIEW window interface products allow you to establish your own hyperlinks. Once you start using CMF MONITOR Online, you may find that you frequently follow a path through the product that is not supported by the default hyperlinks. To find out how to override these defaults and create your own hyperlinks, type **HELP HYPERLINKS** in the **COMMAND** field.

Figure 1-5 illustrates how you might use hyperlinks. The DEV view, which analyzes the performance of direct access storage devices (DASD) is shown in Figure 1-5.

**Figure 1-5**      **DEV View**

```

10JUN2003 11:14:33 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =DEV=====CXTSTJ=====10JUN2003==11:14:32====CMF=====164
C Volser Dev LCU Actv Resp IOSQ CUB  DPB  DB   Pend Disc Conn %Dev %D
- ----- Num --- Rate Time Time Dely Dely Dely Time Time Time Util Rv
SPLA20 0220 028 0.0 1.3          0.3 0.1 0.9 0.0
PAGA21 0221 028 0.0 1.4          0.4 0.2 0.8 0.0
SPLB22 0222 028 0.0 1.3          0.4 0.1 0.9 0.0
PAGB23 0223 028 0.0 45.0         44.1 0.0 0.9 0.0
SPLC24 0224 028 2.3 2.3          0.4 0.9 0.9 0.4
PAGE25 0225 028 0.0 1.3          0.4 0.1 0.9 0.0
SPLD26 0226 028 0.0 1.5          0.5 0.1 0.9 0.0
SYSP02 0227 028 0.0 297.        295. 0.2 0.9 0.0
SPLE28 0228 028 0.0 1.9          0.9 0.1 0.9 0.0
TSG301 0229 028 0.3 2.9          0.8 0.8 1.3 0.1
BAB410 022A 028 0.0 1.2          0.3 0.0 0.9 0.0
TSG302 022B 028 0.1 3.3          0.3 1.8 1.2 0.0
SMFB2C 022C 028 0.0 1.3          0.3 0.1 0.9 0.0
SMFC2D 022D 028 1.2 1.8          0.5 0.2 1.1 0.2
SMFD2E 022E 028 0.0 1.2          0.3 0.0 0.9 0.0
SP520D 022F 028 0.0 1.4          0.4 0.1 0.9 0.0
OS11GC 0230 028 0.0 1.3          0.3 0.1 0.9 0.0
PAGC31 0231 028 2.5 24.3 1.0 0.0        0.4 17.6 5.2 5.7

```

As you can see, device 227 (Volser SYSP02) has a very high response time. To find out why, you can open another window: type the **HSplit** (horizontal split) command in the **COMMAND** field, move the cursor to where you want the next window to begin, and press **Enter**.

Your screen now looks like this:

**Figure 1-6 Opening Another Window**

```

10JUN2003 11:48:45 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==> 2
W1 -DEV-----CXTSTJ-----*-----10JUN2003--11:48:45---CMF-----242
C Volser Dev LCU Actv Resp IOSQ CUB DPB DB Pend Disc Conn %Dev %D
- ----- Num --- Rate Time Time Dely Dely Dely Time Time Time Util Rv
SPLA20 0220 028 0.0 1.3 0.3 0.1 0.9 0.0
PAGA21 0221 028 0.0 1.4 0.4 0.2 0.8 0.0
SPLB22 0222 028 0.0 1.3 0.4 0.1 0.9 0.0
PAGB23 0223 028 0.0 45.0 44.1 0.0 0.9 0.0
SPLC24 0224 028 2.3 2.3 0.0 0.4 0.9 0.9 0.4
PAGE25 0225 028 0.0 1.3 0.4 0.1 0.9 0.0
SPLD26 0226 028 0.0 1.5 0.5 0.1 0.9 0.0
SYSP02 0227 028 0.0 297. 295. 0.2 0.9 0.0
SPLE28 0228 028 0.0 1.9 0.9 0.1 0.9 0.0
TSG301 0229 028 0.3 2.9 0.0 0.1 0.8 0.8 1.3 0.1
T2 =====

```

Next, you can execute the hyperlink for the Dev Num field if you set the **ALT WIN** value to 2, place the cursor on device number 202, and press **Enter**. This directs the output to window 2 so that you can look at both views at the same time.

The hyperlink displays the DEVINFO view, so your screen now looks like the one shown in Figure 1-7.

**Figure 1-7 Selecting a View Using Hyperlinks**

```

10JUN2003 11:48:45 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 2          ALT WIN ==>
W1 -DEV-----CXTSTJ-----*-----10JUN2003--11:48:45---CMF-----242
C Volser Dev LCU Actv Resp IOSQ CUB DPB DB Pend Disc Conn %Dev %D
- ----- Num --- Rate Time Time Dely Dely Dely Time Time Time Util Rv
SPLA20 0220 028 0.0 1.3 0.3 0.1 0.9 0.0
PAGA21 0221 028 0.0 1.4 0.4 0.2 0.8 0.0
SPLB22 0222 028 0.0 1.3 0.4 0.1 0.9 0.0
PAGB23 0223 028 0.0 45.0 44.1 0.0 0.9 0.0
SPLC24 0224 028 2.3 2.3 0.0 0.4 0.9 0.9 0.4
PAGE25 0225 028 0.0 1.3 0.4 0.1 0.9 0.0
SPLD26 0226 028 0.0 1.5 0.5 0.1 0.9 0.0
SYSP02 0227 028 0.0 297. 295. 0.2 0.9 0.0
SPLE28 0228 028 0.0 1.9 0.9 0.1 0.9 0.0
TSG301 0229 028 0.3 2.9 0.0 0.1 0.8 0.8 1.3 0.1
W2
=DEVINFO=====CXTSTJ=====*=====10JUN2003=11:48:45=====CMF=====1
Volser..... SYSP02 % Allocated.... 100.00 Avg Serv Time.. 81.18
Device Number.. 227 % Utilized..... 2.01 Avg IOSQ Time.. 54.02
Type..... 3380 % Active..... 2.06 Avg Act Time... 27.16
LCU Number..... 24B % Connected.... 0.95 Avg Conn Time.. 12.52
Status..... RDY % Disconn..... 1.06 Avg Dsc Time... 13.98
Mount Status... PRV % Pending..... 0.05 Avg Pnd Time... 0.66
% Mount Pend... % Req Queued... 9.76 Avg DPB Delay..
SSCH/Sec..... 0.76 % Dev Queued... 1.90 Avg CUB Delay..
SSCH/Sec....(R) 0.55 % Q+CPU Wait... 0.08 Avg DvB Delay..
Total SSCH..... 553 % Efficiency... 98.10 % Reserved.....
% In Use..... Avg Q Depth.... 0.04 % Resv Shr.....

```

From this point, you can select other hyperlinked fields to display other views in whatever order you deem appropriate. Depending on your preference, you can either open new windows to display these views or simply replace the output shown in windows 1 and 2. In either case, using hyperlinks to display increasingly detailed information about device 202 is the fastest way to locate the source of its inordinately high response time.

## Using Menus

CMF MONITOR Online presents you with two different types of menus, Easy Menu and View Menu.

### Easy Menu

An Easy Menu consists of a series of options, all of which hyperlink either to data views or to other menus specific to that particular option. The names of all Easy Menu are preceded by the letters EZM.

Easy Menu options intentionally have been given descriptive, intuitive names that correspond to some aspect of system performance. This allows you to use CMF MONITOR Online quickly and easily, without having to learn the names and functions of specific views. For details on using the Easy Menus, see “Using CMF MONITOR Online Easy Menus” on page 3-1.

### View Menus

A view menu displays a list of other views. The MAIN menu is an example of a view menu. Each item on this menu displays a list of submenus. To select an activity or view from a view menu, use the S line command or place the cursor on the appropriate line and press **Enter**.

For details on using the view menus, see “CMF MONITOR Online MAIN View” on page 3-10.

## Using Commands

As an alternative to using hyperlinks or menus, you can display a view by entering the view name or issue a MAINVIEW window interface command by entering the command in the **COMMAND** field.

**Note:** MAINVIEW window interface commands are available to all products using the MAINVIEW window interface. To find out what the MAINVIEW window interface commands are, see the *MAINVIEW Command List*.

### Displaying Multiple Views Simultaneously

To enter multiple views and parameters at one time, use the ISPF delimiter (usually a semicolon) as shown in the next example.

**Example:** After ensuring that two windows (W1 and W2) are open, and entering the CDEV and LCUSTAT commands with these parameters

**W1.CDEV \* \* \* 3380; W2.LCUSTAT**

the CDEV view for all 3380 devices is displayed in window 1, and the LCUSTAT view for all LCUs appears in window 2, like this:

**Figure 1-8 Displaying multiple views (CDEV and LCUSTAT)**

10JUN2003 15:27:13 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----														
COMMAND ==>										SCROLL ==> PAGE				
CURR WIN ==> 2					ALT WIN ==>									
W1 -CDEV-----SYSB-----*-----10JUN2003--15:27:12---CMF-----110														
C Dev	LCU	CP	Type	Response T	I/O	%Dly	IOSQ	Con	Dsc	Pnd	%Dev	%Rsv	#	
- Num	---	---	---	0...50.100	/Sec	----	Time	Time	Time	Time	Util			Opn
B14	043	1B	3380	36.8			1.8	14.5	21.8	0.5	6.6			3
B21	044	1B	3380	28.0			1.5	7.1	20.5	0.4	4.1			1
B17	043	1B	3380	26.0			1.5	7.1	18.5	0.4	3.9			1
B20	044	1B	3380	25.9			0.0	1.9	16.7	7.4	0.0			
B10	043	1B	3380	25.8			1.6	6.7	18.7	0.4	3.9			1
B22	044	1B	3380	25.3			0.0	2.1	16.6	6.6	0.0			6
W2 =LCUSTAT=====SYSB=====10JUN2003==15:27:12===CMF=====58														
C LCU	Onl	CP	Activ	Service Time		IOSQ	%DP	%CU	%All	Cont	Ave			
- Num	Dev	--	Rate	0.....25.....50		Time	Busy	Busy	CPBsy	Rate	Qlen			
03B	1	2	0.2	1176		+	222.6	10.06	10.69	4.48	0.03	0.12		
032	4	1	1.0	135.		+				0.56	0.00	0.00		
044	4	2	2.7	21.9						1.26				
043	8	2	17.9	21.6			0.3			1.26				
02E	22	4	89.7	6.2			0.1	0.98	0.06	1.12	0.02	0.00		
084	7	2	14.5	5.8			0.1		1.23	0.42	0.01	0.00		
029	52	4	88.9	5.6			0.0	1.06	1.71	1.12	0.00	0.00		
024	17	2	70.4	2.6			0.0			0.28				
020	1	1												
022		1												

As you can see, view parameters allow you to filter the data that is displayed in a view so that only those values that meet the selection criteria appear. The command **W1.CDEV \* \* \* 3380** placed a filter on the `Dev Num` column, so that only 3380 type devices were displayed.

The next section explains in greater detail how to use view parameters.

## Using View Parameters

There are two ways to specify view parameters: positionally or by keyword.

Here are a few examples.

**Using Positional Parameters:** When you use *positional parameters*, you supply values for the parameters in a predetermined order. To find out the parameters and their order for a given view, display the view's online help, place the cursor on the highlighted term **positional parameters**, and press **Enter**.

**Example:** Suppose you want to use the JFLOW view to display only those jobs that are experiencing a delay greater than 5 percent (%).

The first thing you do is display the online help for JFLOW, and then hyperlink to the POSITIONAL topic. This topic tells you that the parameters for the JFLOW view are Jobname, Delay %, and Status. That is, the Jobname column is in the first parameter position, the Delay % column is in the second position, and the Status column is in the third.

**Note:** Because the Delay % field is a graph, the title is not displayed in the online help.

You want to display all jobs with a delay greater than 5 percent, so you issue

**JFLOW \* 5**

Issuing JFLOW \* 5 produces the display shown in Figure 1-9 below:

**Figure 1-9 JFLOW Output**

```

10JUN2003 12:52:13 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =JFLOW=====SYSB=====10JUN2003==12:52:12==CMF=====7
C Jobname  T SrvClass      Workflow %      Delay %      Main Reason
-----
DMSAR      S STCNRM        3.7 *          16.6 **      Reserve
ABK1B23    B BATNRM        85.1 *****    14.8 **      Wait for CPU
VAM3       T TSONRM        81.5 *****    10.0 *       Wait for CPU
DMSAR      S STCNRM         5.1 *           8.8 *       Reserve
RYS1SOLB   S STCNRM        42.2 *****     6.2 *       Wait for CPU
JES2       S STCNRM        48.3 *****     5.4 *       Reserve
FLN1       T TSONRM        81.5 *****     5.4 *       Wait for CPU

```

Even though Delay % is the sixth *column*, it was defined as the second *parameter*. Thus, a 5 was entered in the second position after JFLOW (JFLOW \* 5).

When you specify a value for any view parameter other than the first, all preceding parameters must be accounted for by the wildcard character, \* (asterisk). That is why a wildcard character, \* (asterisk), appeared in the first position. This wildcard character does not affect the view output, but serves merely as a placeholder so that you can use the view's positional parameters correctly.

**Note:** If a column is not defined as a parameter by default, you can make the column a parameter by typing **CUST** in the **COMMAND** field, and then choosing **L** (Filter). For more information, type **HELP CUSTOM** in the **COMMAND** field and select the Filter topic.

**Using Keyword Parameters:** Instead of using JFLOW's positional parameters, you could have used the Delay % column's *keyword* (or *element name*) to achieve the same result. An element name is simply the name by which CMF MONITOR Online refers to a column internally.

When you check the view help for JFLOW you can see all the element names by hyperlinking on the **ELEMENTS** hyperlink. This shows that the element name for Delay % is ASIDLYP. Instead of issuing JFLOW \* 5, then, you could have issued

**JFLOW ASIDLYP(5)**

to display the same data.

**Using the PARM Command:** If a view is already displayed, you can use the PARM command in place of the view name to supply new parameters. Because the PARM command simply places a filter on the existing data, rather than invoking the data collectors to gather new data, PARM is much faster than using the view names.

PARm works both for positional and keyword parameters. That is, assuming that JFLOW is displayed as shown in Figure 1-9 on page 1-14, this command:

**PARm \* 7**

redispays JFLOW, listing only those jobs delayed greater than 7% of the interval.

Alternatively, this command:

**PARm ASIDLYP(7)**

achieves the same result.

## Using Several Methods

As mentioned previously, you do not have to use hyperlinks, menus, or commands exclusively. Rather, all three methods are available from any display at any time and may be used interchangeably.

**Example:** Suppose you have just accessed CMF MONITOR Online and want to see a list of the available workload delay views. From EZM390, move your cursor to the MAINVIEW option (Easy Menu method). When the MAIN view is displayed, place the cursor on the WORKDEL views option. Press **Enter** to display the menu shown in Figure 1-10 on page 1-15 (view menu method):

**Figure 1-10 Workload Delay Views Menu**

```

10JUN2003 08:56:06 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =WORKDEL=====SYSB=====10JUN2003==08:56:05====CMF=====32
C View Name  Description
-----
DDJOB       Devices delaying jobs
DUJOB       Devices used by jobs
JDDEV       Jobs delayed by devices
JDELAY      Interval job delays
JDELAYZ      Summarized job delays
JDENQ       Jobs delayed by enqueues
JFLOW       Interval job flow and delay
JFLOWZ      Summarized job flow and delay
JHSMD       HSM related delays
JINFO       Detailed job delay information
JJESD       JES related delays
JMSGD       WTOR related delays
JSRMD       Interval job SRM delays
JSTORD      Interval job storage delays
JUDEV       Jobs using devices
JUENQ       Jobs using enqueues
WDELAY      Interval workload delays
WFLOW       Interval workload flow/delay
WFLOWZ      Summarized workload flow/delay

```

After selecting a view from the menu (view menu method), you modify the display by using the SOrt command to sort a field in the **COMMAND** field (command method).

You then type **CUST** in the **COMMAND** field (command method) to invoke the view customization facility and tailor the view to suit your needs.

When you finish customizing the view, you start exploring system performance by using hyperlinks; that is, jumping from view to view by placing the cursor on a highlighted field and pressing Enter.

Remember—if a hyperlink does not exist for a desired view and you do not want to establish one, you can always display the view you want by entering its name (and parameters) in the **COMMAND** field. You can also retrace up to 20 steps in a window by pressing PF3 repeatedly or get back to the EZM390 view at any time by typing **EZM390** in the **COMMAND** field. (EZM390 is treated as any other view in the stack. If you press PF3, you return to the previous view.)

## Using CMF MONITOR Online on Several Systems

One of the greatest benefits of the MAINVIEW window interface is the ability to control multiple local and remote systems, access different products on those systems, and compare and contrast data from different time periods—all on the same screen, *all at the same time*. In fact, the MAINVIEW window interface allows you to open up to 20 windows on a single screen and control a different aspect of system performance in each. And with the MAINVIEW window interface, you can do all this from a single user session, rather than initiating multiple sessions under the control of a session manager.

**Example:** Suppose you are responsible for three MVS systems: SYSA, SYSB, and SYSC. Rather than having three terminals, each devoted to a separate system, you want to survey the health of each of your systems simultaneously—all on the same screen.

Starting with SYSA, you display the SYSOVER view in window 1. SYSOVER displays an overview of all important system activity:

---

```
10JUN2003 09:48:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =SYSOVER=====SYSA=====10JUN2003==09:48:18====CMF=====50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
34 10JUN2003 09:48:04 65.6 27.9 25.5 36.8 51.8 0.0 97.1 18 45 430 3 117 0.1
```

---



Next, you open a second window and use the CONtext command to set that window to SYSB. (*Getting Started with CMF MONITOR Online* describes the CONtext command syntax in detail.) From now on, any views directed to window 2 automatically reflect the activity on SYSB—you will not have to use the CONtext command again on this system.

After displaying SYSOVER in window 2, your screen looks like this:

```
10JUN2003 09:48:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 2          ALT WIN ==>
W1 -SYSOVER-----SYSA-----*-----10JUN2003--09:48:18---CMF-----50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
34 10JUN2003 09:48:04 65.6 27.9 25.5 36.8 51.8 0.0 97.1 18 45 430 3 117 0.1
W2 =SYSOVER=====SYSB=====*=====10JUN2003==09:48:18===CMF=====50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
35 10JUN2003 09:48:16 26.0 8.4      1.9 100. 0.1 58.3 66 29 1 166
```

Moving on to SYSC, you open a third window, use the CONtext command to set that window to SYSC, and then display SYSOVER again in window 3.

```
10JUN2003 09:48:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 3          ALT WIN ==>
W1 -SYSOVER-----SYSA-----*-----10JUN2003--09:48:18---CMF-----50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
34 10JUN2003 09:48:04 65.6 27.9 25.5 36.8 51.8 0.0 97.1 18 45 430 3 117 0.1
W2 -SYSOVER-----SYSB-----*-----10JUN2003--09:48:18---CMF-----50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
35 10JUN2003 09:48:16 26.0 8.4      1.9 100. 0.1 58.3 66 29 1 166
W3 =SYSOVER=====SYSC=====*=====10JUN2003==09:48:22===CMF=====50
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln  Q %S %S /Mn /Mn  Qln
33 10JUN2003 09:48:26 65.4 33.7 21.8 28.5 51.8 0.1 103. 19 39 402 2 99 0.3
```

With just a few simple commands, you have a complete overview of all your systems. Now you can quickly spot the difference between local problems and more pervasive, serious problems—one glance can tell you whether a problem on SYSA is confined to that system or propagated across them all.

Because CMF MONITOR Online windows are completely independent from each other, you can solve a problem on one system—using hyperlinks to jump from view to view until you find the cause—while still keeping an eye on your other systems.

In addition, after you arrange the windows the way you want them, you can save the entire screen for later display with the SAVESCR command. The next time you want to display that window configuration, all you do is type the SCR command followed by the name you assigned to the screen. “Using Screen Definitions” on page 3-32 offers more information.

## Using Single System Image (SSI)

CMF MONITOR Online now allows you to see information obtained from multiple MVS images, all within a single view. By using the Single System Image (SSI) context of ALL (which has been predefined as including all systems communicating with your PAS), you can display data from two or more systems within a single view.

**Example:** Suppose you have three MVS images (SYSA, SYSB, and SYSC) connected to the PAS on a fourth system (SYSD). By using the SSI context of ALL, you could view device activity for all devices on all systems by typing **CONTEXT ALL \*;DEV** in the **COMMAND** field.

Your view would look something like Figure 1-11.

**Figure 1-11**      **DEV View with SSI Context ALL**

C	Volser	SSI	Dev	LCU	Actv	Resp	IOSQ	CUB	DPB	DB	Pend	Disc	Conn	%Dev	%D
-	-----	System	Num	---	Rate	Time	Time	Dely	Dely	Dely	Time	Time	Time	Util	Rv
	XCF001	SYSA	200	002	0.7	3.4					0.2	0.1	3.0	0.2	
	XCF001	SYSB	201	002	0.3	3.8					0.2	0.1	3.5	0.1	
	XCF001	SYSC	202	002	0.0	1.3					0.1	0.1	1.2	0.0	
	XCF001	SYSD	203	002											
	SYSP04	SYSA	204	002											
	SYSP04	SYSB	205	002											
	SYSP04	SYSC	206	002	0.3	1.2					0.2	0.1	0.9	0.0	
	SYSP04	SYSD	207	002	0.1	1.5					0.2	0.1	1.2	0.0	

This screen displays four lines of information for each device, one line for each of the four systems connected to the PAS.

**Note:** To see the SSI System field in this view, you may need to type **INclude SYSTEM** in the **COMMAND** field.

To see a list of all systems that you have access to from the system you are currently using, you can use the PLEXOVER view in the PLEXMGR product. For more information about PLEXMGR, see the *MAINVIEW Administration Guide*.

Alternately, from the EZM390 menu you could choose the Utilities option and then select the Change System option. This option allows you to display a view that lists all valid SSI contexts and allows you to change the context for all the views you display.

You can use SSI to monitor all aspects of a sysplex, with either one row of data for each system or summarized across all MVS images in the sysplex. For more information on using the SSI context, see *CMF MONITOR Online Getting Started*.

## CMF MONITOR and MAINVIEW for OS/390

MAINVIEW for OS/390 is an MVS performance management product that runs in the same product address space (the MVS PAS) as CMF MONITOR. MAINVIEW for OS/390 collects data about more than 5,000 discrete elements in your system and reports on their performance.

Just as with CMF MONITOR Online, the information that MAINVIEW for OS/390 presents can be both realtime and historical, which allows for simultaneous analysis of current and past resource performance. With the MAINVIEW Window Interface, you can display multiple views of both products running on multiple systems, all on a single terminal screen.

MAINVIEW for OS/390 and CMF MONITOR Online share the following:

- Both use data from the CMF MONITOR Extractor samplers and from the MVS PAS data collectors for their views.
- Both contain some of the same views.
- Each contain the SCREENS view which has the same name and contains the same information in both.
- Both contain some additional views that have the same names but contain different information. These views are

ADMIN    MAIN    UTILITY    VIEWS

**Note:** MAINVIEW for OS/390 has views that CMF MONITOR Online does not contain (see the *MAINVIEW for OS/390 User Guide and Reference* for more information).

## CMF MONITOR-Specific Views

Views that are specific to CMF MONITOR Online and that do not appear in MAINVIEW for OS/390 are presented in Table 1-2:

**Table 1-2      CMF MONITOR Online Views**

ARD	DDMN	EZMON2	PDEV	SENG	STORCS
ASD	DEV	EZMON3	PGSP	SPAG	SYSOVER
ASRM	DEVZ	IOQ	PGSPS	SRCS	TRX
CDEV	DMON	JUSE	RMON	STORC	WUSE
CHANNEL	EZMCMF	LDEV	SDEV	STORCR	

## Data Presented by CMF MONITOR Online

CMF MONITOR Online is a tool that helps you manage MVS system performance. CMF MONITOR Online monitors system activity, collecting information on all address spaces (TSO users, batch jobs, and started tasks), such as

- Address space use of various system resources
- Delays that each address space (job) incurs while waiting for access to these resources
- Resource use and contention, identifying the delays that jobs encounter, resources that are contention bottlenecks, and jobs competing for those resources.

The system resources that are monitored are physical (processors, real storage, direct access storage, and tape devices) and logical (SRM and enqueues). Examples of the type of information that appears in CMF MONITOR Online views are

- Amount of delay for each workload, performance group, and job
- Resources in which bottlenecks exist
- Jobs contending for these resources
- Jobs that are using these resources

The major resources CMF MONITOR Online monitors and the probable reasons for delays are shown in [Table 1-3](#).

**Table 1-3      Resources Tracked by CMF MONITOR Online (Part 1 of 2)**

System Resource	Reason for Delay
Device	DASD I/O queued DASD reserve Disk mount pending Tape I/O queued Tape mount pending
Enqueue	Contention for logical resources
HSM	HSM staging data sets to a DASD volume
Processor (CPU)	Waiting for the CPU

**Table 1-3 Resources Tracked by CMF MONITOR Online (Part 2 of 2)**

System Resource	Reason for Delay
SRM	Auxiliary storage shortage Real storage shortage Request swaps Enqueue exchange swaps Exchange swaps Unilateral swaps Transition swaps Response Time Option (RTO)
Storage	Page-in wait due to demand paging from <ul style="list-style-type: none"> <li>• PLPA page data set</li> <li>• Common page data set</li> <li>• Local page data sets</li> </ul> Page-in wait due to swap page-in from <ul style="list-style-type: none"> <li>• Swap data sets</li> <li>• Page data sets</li> </ul> VIO page-in wait: Real storage shortage

## Workload Classifications

MVS uses address spaces to manage the flow of work through the system. CMF MONITOR Online groups individual address spaces into the following basic MVS workloads:

- ASCH
- Batch jobs
- Composite workloads
- OMVS
- Performance group
- Started tasks
- TSO users

**Note:** On MVS SP5 systems operating in WLM goal mode, two additional workload classifications exist:

- SCL - WLM service classes
- WKL - WLM workloads

CMF MONITOR Online monitors each of these workloads, giving you a clear overview of resource use, delays, and contention for the address spaces in each workload group.

## Monitoring Performance Groups or Service Classes

In MVS SP4 systems and MVS SP5 systems in compatibility mode, CMF MONITOR Online monitors performance groups as workloads in addition to the basic MVS workloads. Performance groups are defined in the active IEAIPS.xx member in SYS1.PARMLIB. The data collector assigns names to the performance group workloads as PGRPnnn, where *nnn* is the performance group number.

In MVS SP5 systems in goal mode, CMF MONITOR Online monitors the SCL and WKL workloads automatically instead of the PGRPnnn workloads, since performance groups do not exist in goal mode.

With the ability to monitor delays at the performance group level, you have another viewpoint for analysis of workload delay and contention. Figure 1-12 shows you how the data output appears after you issue the WDELAY view command, which shows both basic workloads and performance group workloads. Notice both the workload and performance group names under the Workload column.

**Figure 1-12 Workload and Performance Groups—WDELAY View**

C	Workload	#AS	Total Delay%	%Dly	%Dly	%Dly	%Dly	%Dly	%Dly
-	-----	---	0.....50...100	CPU	Dev	Stor	SRM	ENQ	HSM
	PGRP0003	1	61.94	*****	28.4	33.5			
	ALLBAT	2	32.33	****	20.9	10.2	1.3		
	PGRP0320	1	31.77	****	30.9	0.9			
	PGRP0011	2	19.14	**	19.1				
	PGRP0310		12.69	**	7.8	1.7	3.1		
	PGRP0400	3	10.33	*	10.3				
	PGRP0010	15	8.48	*	8.4	0.1			
	ALLSTC	105	2.66	*	2.4	0.2			
	PGRP0006	11	2.57	*	2.5	0.0			
	PGRP0030	26	1.61	*	0.9	0.7			
	ALLWKlds	317	1.44	*	1.2	0.2	0.0	0.0	0.0
	MMRCOMP	317	1.44	*	1.2	0.2	0.0	0.0	0.0
	PGRP0321		0.68		0.2	0.5			
	PGRP0270	16	0.33		0.2	0.1		0.0	
	PGRP0005	1	0.25		0.2				
	PGRP0000	31	0.17		0.1	0.1			
	SHTEST1	417	0.17		0.1	0.0		0.0	0.0
	ALLTSO	210	0.16		0.1	0.0		0.0	0.0
	PGRP0002	191	0.15		0.1	0.0		0.0	0.0

## Workflow and Delay Monitoring

To interpret the data, you need to understand how CMF MONITOR Online tracks workflow and delays:

## Workload Workflow

Workload workflow measures how efficiently system resources are serving the jobs in a workload (batch, started tasks, or TSO sessions):

- A high workflow value indicates the workload is accessing resources on request with little impact on performance because of resource contention.
- A low workflow value typically indicates the workload is accessing few of the system resources it needs to execute.

Workload Workflow Calculation:

$$\text{Workflow \%} = \frac{\text{\# samples using system resources}}{(\text{\# samples using system resources} + \text{\# samples delayed for system resources})} \times 100$$

Where: **\# Samples using system resources** is the number of samples collected that show a job in the workload using processor and device resources.

**\# Samples delayed for system resources** is the number of samples collected that show jobs in the workload delayed for resources.

## Workload Delay

Workload delay measures the impact on a workload's performance because of contention for physical and logical resources. Delays typically occur because resources are used sequentially; if a resource is currently servicing a job, other jobs requesting the same resources are delayed until the current request ends.

- A high delay value indicates jobs in the workload cannot gain access to the resources they need.
- A low delay value indicates system resources are serving the jobs in a workload efficiently. This indicates little contention for resources from other jobs.

In most cases, the sum of the values for workflow and delay is not 100%; this is because of voluntary wait or idle time (for example, TSO user address space think time, when the job is neither using resources nor delayed because of contention for a resource).

Workload Workflow Calculation:

$$\text{Delay \%} = \frac{\text{\# Samples delayed for system resources}}{\text{Total \# of samples}} \times 100$$

Where: **\# Samples delayed for system resources** is the number of samples collected that show jobs in the workload delayed for resources such as processor, DASD devices, storage, enqueue, SRM, or HSM.

**Total \# of samples** is the total number of samples collected.

### Interpreting Delay in Terms of Response Time:

You can statistically interpret workload delay in terms of time in order to evaluate the impact of delays. For example, assume that average TSO response time is two seconds and that the delays observed for the TSO workload are in the percent column. You quickly can identify areas for improvement in terms of time, as shown in the following example:

Delay due to	Percent	Seconds Delay
Processor	45%	.9
Devices	30%	.6
Storage	10%	.2
SRM	5%	.1

### Job Workflow

Job workflow indicates how effectively system resources serve a job:

- A high job workflow value implies a job is accessing the requested resources and other jobs have little impact on it.
- A job with a low workflow value has few of the resources needed to execute.

### Job Delay

Job delay is a measure of resource contention on a job's performance:

- A high delay value suggests the job cannot access the resources it needs because of contention from other jobs.
- A low delay value indicates the job is experiencing little contention for resources from other jobs.



---

## Chapter 2      Using CMF MONITOR Extractor Utilities

The CMF MONITOR Extractor utilities function as an ISPF dialog. They provide you with services that let you

- check on the status of CMF MONITOR Extractor samplers
- view configuration information about your system
- examine Extractor data areas, common storage, or your private address space
- display data about CMF, SMF, or RMF records in any data set in hexadecimal format

Any utility service is performed within the system on which it is installed. Even if CMF MONITOR Online has cross-system capability, you cannot access the utilities from another system. You must log on to the system for which you want to perform CMF MONITOR utility services.

This chapter provides information about accessing the utilities and explains how to use the utility options.

### Accessing the CMF MONITOR Utilities

- Step 1**    Display the MAINVIEW Selection Menu.
- Step 2**    Select Option **Z** OS/390, z/OS, and USS.
- Step 3**    Select Option **7** CMFUTIL.

The following options are available on the CMF Extractor Online Utilities menu:

- S - STATUS**      Displays the STATUS panel. This panel is a scrollable table that
- Indicates whether CMF MONITOR is active
  - Indicates mode: Continuous Performance Monitoring (CPM) or Intermittent Performance Monitoring (IPM)
  - Summarizes the activity in each mode
  - Summarizes the activity of each CMF MONITOR sampler that was invoked when CMF MONITOR was started
- For more information see “Using the STATUS Option” on page 2-2.
- C - CONFIG**      Displays the CONFIG panel. This panel summarizes the main hardware and software characteristics of your system, including processor type, operating system release number, amount of real storage available, and number of online devices. For more information, see “Using the CONFIG Option” on page 2-6.
- D - DEBUG**      Displays the DEBUG Menu. With this menu, you can specify a CMF Extractor data area (default MVT) or an address either in commonly addressable storage or in your private address space for examination. For more information, see “Using the DEBUG Option” on page 2-8.
- P -PERUSE**      Displays the PERUSE Menu. Use PERUSE to search for and examine the CMF, SMF, or RMF records of any variable-block or SMF data set and to display a hexadecimal dump of these records. For more information, see “Using the PERUSE Option” on page 2-10.
- Note:** Information about each utility is available in a series of online help panels. To view these panels, select the utility option, and then enter the HELP command (PF1).

## Using the STATUS Option

The STATUS option summarizes the activity of each active sampler for each active CMF MONITOR Extractor running on your system.

- Step 1**      Select **S - STATUS** from the CMF Extractor Online Utilities menu.

The CMF Extractor Status panel is displayed.(see Figure 2-1)

**Figure 2-1 CMF Extractor STATUS Panel**

```

----- CMF EXTRACTOR STATUS ----- ROW 1 TO 37 OF 105
COMMAND ==>                               SCROLL ==> PAGE

Press ENTER to update display.                Date: YY/MM/DD Time: 05:46

+-----+
***** C M F   M O N I T O R   S T A T U S *****
VERSION:      CMF   (R.V.M)      BBX   (R.V.M)
CPM MONITOR ACTIVE - 15:24:08  06/10/03  CXEN(N)
MVT(009FB130) CSA ALLOC(280K) USED(131K) DIE(0101990)
WKQE'S: TOT(01352) MAX(00159) AVG(00086) CUR(00085)
RUN TIME - 1440  RECORD TIME -    15 MEMBER - CMFCPM00
CMF MONITOR OUTPUT DATA SET:    1636 RECORDS WRITTEN
      NULLFILE
RECD ACT  RATE- 15M  SAMP-    58  EVENT-    0
GBLS ACT  RATE-1000  SAMP-   50981  EVENT-    0
CPUS ACT  RATE- 500  SAMP-  101990  EVENT-    0
PAGS ACT  RATE-5000  SAMP-   10212  EVENT-   47584
WORS ACT  RATE-1000  SAMP-   51007  EVENT-    0
CHNS ACT  RATE- N/A  SAMP-    59  EVENT-    0
IOQS ACT  RATE- N/A  SAMP-    863  EVENT-    0
VSMS ACT  RATE-5000  SAMP-   10212  EVENT-    0
DEVS ACT  RATE-1000  SAMP-   51007  EVENT-    0
DEVS ACT  RATE-1000  SAMP-   51007  EVENT-    0
ASMS ACT  RATE-1000  SAMP-   51007  EVENT-    0

```

- Step 2** Use your PF keys to scroll through the STATUS panel. Data for each Extractor that is running on your system is sequentially displayed. Data for the first Extractor in the sequence appears at the top of the STATUS panel. The next group of data encountered is for the second Extractor in the sequence.

## Field Descriptions for the STATUS Option

The fields displayed in the STATUS panel are described in the following table.

**Table 2-1 Field Descriptions for the STATUS Option (Part 1 of 2)**

Field Name	Description
VERSION	The first message line shows the version and release information of the active CMF MONITOR and of the BMC Software Subsystem Services (BBXS). This information is provided for each system in the format: Version.Release.Level
Monitoring Mode	<p>The second message line indicates which monitoring mode is active:</p> <p>CMF        Continuous Performance Monitoring</p> <p>IMP        Intermittent Performance Monitoring</p> <p>The time and date that the monitor was started is also shown.</p> <p>CXEN(Y)   indicates that the PAS was started with CXEN=Y.</p> <p>CXEN(N)   indicates that the PAS was started with CXEN=N.</p> <p>If there is no active monitor, this message is displayed:</p> <p style="text-align: center;">CMF NOT ACTIVE</p> <p>If CMF MONITOR is in the process of initializing, this message appears:</p> <p style="text-align: center;">NO ACTIVE MONITORS</p>
MVT	The CSA address of the main CMF MONITOR control block.

**Table 2-1** Field Descriptions for the STATUS Option (continued) (Part 2 of 2)

Field Name	Description
CSA ALLOC	The amount of extended CSA allocated (as specified on the CMF MONITOR Extractor REPORT control statement; see the <i>CMF MONITOR Batch Reference Guide</i> ).
USED	The portion of allocated CSA actually used.
DIE	The number of disabled interrupt exits taken.
WKQE'S	TOT Total number of 128-byte storage blocks formatted in CSA. MAX Maximum number of 128-byte storage blocks used. AVG Average number of 128-byte storage blocks used. CUR Current number of 128-byte storage blocks used.
RUN TIME	The length of time, in minutes, that CMF MONITOR will run (as specified on the CMF MONITOR Extractor REPORT control statement; see the <i>CMF MONITOR Batch Reference Guide</i> ).
RECORD TIME	The interval, in minutes, for writing records (as specified on the CMF MONITOR Extractor REPORT control statement; see the <i>CMF MONITOR Batch Reference Guide</i> ).
MEMBER	The name of the //PARMLIB DD member from which input control statements were read. SYSINCPM or SYSINIPM means input was read from SYSIN for CPM or IPM.
RECORDS WRITTEN	The number of records that have been written to the CMF MONITOR output data set. This field does not appear if any of the following conditions exist: <ul style="list-style-type: none"> <li>• The status panel is reporting on a version of CMF below 5.1.</li> <li>• The Extractor is writing to SMF.</li> <li>• The Extractor is writing to a null file.</li> <li>• Extractor recording has been suspended.</li> </ul>
CMF MONITOR OUTPUT DATA SET	The name of the CMF MONITOR or SMF recording data set. An asterisk (*) indicates that this is the alternate data set (the primary data set is full). If both the primary and alternate data sets are full, the following message is displayed: DATASET(S) FULL, RECORDING IS SUSPENDED

## Sampler Information Lines

The remainder of the output panel provides a sampler information line for each sampler that was invoked at Extractor initialization, in the following format:

**Figure 2-2** Format for Sampler Information Line

```

1      2      3      4      5
xxxx  xxx  RATE-xxxx  SAMP-xxxxxxxxx  EVENT-xxxxxxxxx

```

1. The four-character sampler identification, which can be any of the IDs listed in Table 2-2.
2. Status, which can be: ACT(Active) STP(Stopped) ABD(Abended).
3. Sampling rate in milliseconds. A suffix of M denotes minutes.
4. Count of samples.
5. Count of SYSEVENTS intercepted.

## Samplers and Extractor Control Statements

Table 2-2 lists the four-character identifiers for each sampler with a description of the information that each sampler gathers and the corresponding Extractor control statement. These four-character identifiers appear at the beginning of each sampler information line on the STATUS panel.

**Table 2-2      Sampler Values and their Corresponding Extractor Statements and Record Types  
(Part 1 of 2)**

<b>Sampler</b>	<b>Description</b>	<b>Extractor Statement</b>	<b>Record Type</b>
ASMS	Page/swap data set activity and ASM data	ASMDATA	SMF 75 CMF 240-02 CMF 240-09
CA03 CA13 CA3C CA23	Cache data records	CACHE	CMF 240-27
CFTS	Coupling facility data	CFDATA	CMF 240-67
CHNS	Channel activity	CHANNEL	SMF 73
CPUS	CPU activity and data	CPU	SMF 70 CMF 240-01
CSMS	COMMON STORAGE MONITOR records Note: This sampler does not run in IPM mode.	CSMON	CMF 240-29
DEVS	Device activity and data	DEVICE	SMF 74-1 CMF 240-05
DITS	Disabled time	DISTIM	CMF 240-24
ENQS	Enqueue activity Note: This sampler does not run in IPM mode.	ENQUEUE	SMF 77
EXTS	Extractor summary data and performance group mapping data Note: This sampler does not run in IPM mode.	EXTSUM	CMF 240-06 CMF 240-07
GBLS	Global bit map	REPORT	CMF 240-11
HMOV	DASD head movement mount data, seek data, and VTOC data	HEADMOVE	CMF 240-12 CMF 240-13 CMF 240-14
IOQS	I/O queuing data for 4381 or 3090 or later processors	IOQ	SMF 78-1 SMF 78-3
IOWS	I/O workload record data	MACSCHAR	CMF 240-19
LPAM	LPA mapping data	LINKMAP	CMF 240-16
OMVS	OpenEdition MVS activity	OMVS	SMF 74-3

**Table 2-2      Sampler Values and their Corresponding Extractor Statements and Record Types  
(continued) (Part 2 of 2)**

<b>Sampler</b>	<b>Description</b>	<b>Extractor Statement</b>	<b>Record Type</b>
PAGS	Paging activity and data	PAGING	SMF 71 CMF 240-03
PGDS	Storage data by performance group  Note:    This sampler requires that the MVS PAS data collectors be active.	PGDDLAY	SMF 72-2
PRIS	Priority sampling record data	MACSCHAR	CMF 240-23
RECD	SRM constants, installation performance specifications, and Extractor control cards data	REPORT	CMF 240-00
TRAS	System control block trace data	TRACE76	SMF 76
TRCE	CMF trace record data	TRACE	CMF 240-18
TSOS	TSO command and user summary record data	TSODATA	CMF 240-20 CMF 240-21
USER	User-specified data	USER	user-specified
VSMS	Virtual storage data	VSMDATA	SMF 78-2
WLMS	Workload activity and data (MVS 5.1 and later only)	WORKLOAD	SMF 72-3 SMF 72-1 CMF 240-04
WORS	Workload activity and data  Note:    This sampler does not run in IPM mode.	WORKLOAD	SMF 72-1 CMF 240-04
XCFS	Cross-System Coupling Facility (XCF) data	XCFDATA	SMF 74-2

## Leaving the STATUS Option

Press the End key to leave the STATUS option. You are returned to the CMF Extractor Online Utilities menu.

## Using the CONFIG Option

The CONFIG option displays the current hardware and software characteristics of the operating system. When you select **C - CONFIG** from the CMF Extractor Online Utilities menu, the panel shown below is displayed.

**Figure 2-3 System Configuration Panel**

```

----- SYSTEM CONFIGURATION ----- ROW 1 TO 11 OF 11
COMMAND ==> SCROLL ==> PAGE

Press ENTER to update display. Date: YY/MM/DD Time: 16:17
+-----+
|
| *****
| *
| *
| * SYSTEM ID ==> SYSB      ONLINE DEV ==> 238 *
| * MODEL NUM ==> 9021      ONLINE TAPE ==> 5 *
| * TYPE ==> MVS/ESA        ONLINE DASD ==> 158 *
| * RELEASE ==> SP4.2.2     CHAN PATHS ==> 15 *
| * STORAGE ==> 130M        JES ID ==> JES2 *
| *
| *****
| ***** BOTTOM OF DATA*****
|
+-----+

```

## Field Descriptions for the CONFIG Option

The fields displayed in the SYSTEM CONFIGURATION panel are described in Table 2-3.

**Table 2-3 Field Descriptions for the CONFIG Option**

Field Name	Description
SYSTEM ID	SMF system ID, taken from the SMCASID field of the SMCA.
MODEL NUM	CPU model number, taken from the CVTMDL field of the CVT.
TYPE	MVS system type.
RELEASE	System release level, taken from the CVTPROD field of the CVT.
STORAGE	Maximum amount of real storage potentially available, from the CVTEORM field of the CVT. This value is rounded up. It is displayed in megabytes (M) from 0 to 999, and then is displayed in gigabytes (G). A value of 1000 megabytes is expressed as 1G.
ONLINE DEV	Number of online devices, as reflected in the UCBs.
ONLINE TAPE	Number of online tape drives, as reflected in the UCBs.
ONLINE DASD	Number of online DASDs, as reflected in the UCBs.
CHAN PATHS	Number of online channel paths, as defined in the ICHPT.
JES ID	Name of the primary Job Entry Subsystem, from the JESPJESN field of the JESCT.

## Leaving the CONFIG Option

Press the End key to leave the CONFIG option. You are returned to the CMF Extractor Online Utilities menu.

## Using the DEBUG Option

The DEBUG option is a diagnostic tool for the CMF Extractor. When you select **D - DEBUG** from the CMF Extractor Online Utilities menu, the menu shown in Figure 2-4 is displayed.

**Figure 2-4**      **DEBUG Menu**

```

----- CMF EXTRACTOR DEBUG -----
COMMAND ==>

DATA AREA   ==> MVT      (Select from list below)
MONITOR MODE ==> CPM      (CPM or IPM)
FNQE ID     ==>          (Name of sampler) *
DEC LENGTH  ==>          (Length in decimal of area to dump)
HEX LENGTH  ==>          (Length in hexadecimal of area to dump)
ADDRESS     ==>          (Virtual address; overrides DATA AREA field)

Valid data areas are:

ASIDT      FNQE      FNQFWD4  FNQFWD8  MVT      SAMPSRM  SRMWORK
CSAB       FNQFWD1  FNQFWD5  GSMP     MVTX     SRBD     WKQE
DIER       FNQFWD2  FNQFWD6  JES2     SAMPDIE  SRBR
FNQCSAWK   FNQFWD3  FNQFWD7  JES3     SAMPSRB  SRMR

* If DEVS, FNQE ID may be DASD, TAPE, COMM, UREC, GRAF, CHAR, or MIXD

```

## Field Descriptions for the DEBUG Option

The fields displayed in the CMF EXTRACTOR DEBUG panel and the information requested for each field are described in [Table 2-4](#). Some of these fields are optional depending upon the type of data you are researching.

**Table 2-4**      **Field Descriptions for the DEBUG Option (Part 1 of 2)**

Field Name	Description
DATA AREA	Data area name. Enter the data area name of your choice from the list provided; MVT is the default.
MONITOR MODE	Data area name. Mode in which CMF MONITOR is operating. This value is either CPM or IPM; CPM is the default.
FNQE ID	<p>Specific sampler's FNQE ID. If DEBUG requires this value for the data area you have specified, you are prompted to enter the sample's FNQE ID in this field. Valid FNQE IDs are shown in the <i>Sampler</i> column in Table 2-2 on page 2-5.</p> <p>Any number of device FNQEs are allowed. If DEVS is specified, the first FNQE found for a device sampler is displayed. If a device sampler was requested for a device class, the class can be specified in place of DEVS. Valid device class values are TAPE, DASD, COMM, UREC, GRAF, CHAR, MIXD (use this when you want to view an FNQE for a sampler of mixed device classes).</p>



**Table 2-4 Field Descriptions for the DEBUG Option (Part 2 of 2)**

Field Name	Description
DEC LENGTH	Explicit length for the data area. You specify a decimal value in the DEC LENGTH field. If you do not define a value in this field, you may optionally define a hexadecimal value in the HEX LENGTH field. If the DEBUG option requires this value for the data area you have specified, you are prompted automatically for the information if neither field is defined.
HEX LENGTH	Explicit length for the data area. You specify a hexadecimal value in the HEX LENGTH field. If you do not define a value in this field, you may optionally define a decimal value in the DEC LENGTH field. If the DEBUG option requires this value for the data area you have specified, you are prompted automatically for the information if neither field is defined.
ADDRESS	Storage area address. You can display a storage area by specifying an address in the ADDRESS field. A length is required.  Note: Only addresses in common storage or your TSO private area can be displayed.

When a data area name is selected and other appropriate information has been entered, CMF MONITOR produces a data area display like the example shown in Figure 2-5.

**Figure 2-5 DEBUG Output Panel**

```

----- CMF EXTRACTOR DEBUG OUTPUT ----- ROW 1 TO 17 OF 201
COMMAND ==>                                SCROLL ==> PAGE

Enter HELP for a list of valid commands.

Address      Offset  CSAB data area
-----
03902150     00000  90ECD00C 18CF18B0 58A0B004 18815890 *.....A.*
03902160     00010  80041B11 43108000 4100000A 19104720 *.....*
03902170     00020  C9B28910 00029200 B0AD47F1 C02E47F0 *I...K...0*
03902180     00030  C9B247F0 C05A47F0 C0FE47F0 C1AE47F0 *I .0...0..0A..0*
03902190     00040  C22847F0 C24847F0 C2B847F0 C3F047F0 *B..0B..0B .0C0.0*
039021A0     00050  C4BE47F0 C52447F0 C5609680 B0AC1F11 *D..0E..0E.O. ...*
039021B0     00060  BF178001 41101000 5910CA28 4720C9AA *.....I.*
039021C0     00070  5910CA2C 4740C9AA 9108A016 4710C094 *.....I.J.....M*
039021D0     00080  9104A015 4710C9A2 9120A016 47E0C9A2 *J.....ISJ.....IS*
039021E0     00090  47F0C0A4 9108A015 4710C9A2 9180A016 *.0.UJ.....ISJ...*
039021F0     000A0  47E0C9A2 D603B070 B0704770 C9A2D73D *.ISO. . . .ISP.*
03902200     000B0  B070B070 5010B074 1B229110 A0154710 * . . . .J.....*
03902210     000C0  C0C64120 00E40700 47F0C0D0 00007000 *.F...U...0.....*
03902220     000D0  180118F2 89F00008 BFFDC0CC 1B110A78 *...2I0.....*
03902230     000E0  12FF4770 C9121831 5030B070 5030B094 *....I..... M*
03902240     000F0  18035810 B0741BFF 0E0E47F0 C9CC9680 *.... . . .0I.O.*
03902250     00100  B0AC5810 B0804110 10014130 00B01C21 * . . . . . . . . . .

```

## Using the DEBUG Output Panel

Commands that are valid when entered at the **COMMAND** line on the DEBUG Output panel are shown in Table 2-5.

**Table 2-5 Valid Commands for the DEBUG Output Panel**

Condition	Command	Function
At any time	A or AGAIN	Refresh the data area display.
When displaying a chained data area	F or FIRST	Display the first entry on the chain.
	N or NEXT	Display the next entry on the chain in a push-down stack format.
	ALL	Display the entire chain.
When displaying a WKQE chain	R	Display the next WKQE on the related chain.
	U	Display the next WKQE on the unrelated chain.

## Leaving the DEBUG Option

Press the End key to leave the DEBUG option. You are returned to the CMF Extractor Online Utilities menu.

## Using the PERUSE Option

The PERUSE option searches, examines, and prints records written by CMF, SMF, or RMF. When you select **P - PERUSE** from the CMF Extractor Online Utilities menu, the menu shown in Figure 2-6 is displayed.

**Figure 2-6 PERUSE Menu**

```

----- PERUSE AND PRINT CMF/SMF/RMF RECORDS -----
COMMAND ==>

Peruse current CMF (CPM or IPM) or SMF data set:
  DATA SET TYPE ==> S      ( C - CPM, I - IPM, S -SMF data set)
                        ( NO or blank to peruse data set specified below)
  EXTRACTOR SEQ  ==> 1      (Change only if multiple Extractors are active;
                        use STATUS(S) to determine the sequence number)
  DISPLAY FORMAT ==> NEW    (OLD or NEW)

Peruse other CMF or SMF data set:
  DATA SET NAME ==>
  VOLUME SERIAL ==>        (Required if data set not cataloged)
  DASD UNIT NAME ==>       (Required if not cataloged and not default unit)

Set parameters for searching and printing:
  SEARCH LIMIT  ==> 500    (Maximum records to search per request)
  SYSOUT CLASS  ==> A      (For print option)

To search for, peruse, and optionally print a record from a CMF or SMF data
set, first enter the necessary information above. Another panel will then
appear; on it you can view the records and enter line commands to search for
and print records.

```

When you have specified the data for the fields on the PERUSE Menu, press Enter to display the PERUSE Output panel shown in Figure 2-7 on page 2-12.

## Field Descriptions for the PERUSE Option

The PERUSE Option fields are described in Table 2-6.

**Table 2-6** Field Descriptions for the PERUSE Menu

Field Name	Description
DATA SET TYPE	To search the current CMF or SMF data set, enter one of these codes: <ul style="list-style-type: none"> <li>• S Searches the currently active SMF data set, SYS1.MANx, where x is the designator for the currently active SMF data set. (In MVS SP5, this data set name may follow a different naming convention.)</li> <li>• C Searches the CPM data set, if CMF MONITOR CPM mode is active.</li> <li>• I Searches the IPM data set, if CMF MONITOR IPM mode is active.</li> <li>• NO or blank Searches a data set specified in the DATA SET NAME field.</li> </ul>
DISPLAY FORMAT	Allows you to display records in either the old or the new format. The new format contains an additional command, F, which allows you to find a triplet, EBCDIC, or hexadecimal string in the record.
EXTRACTOR SEQ	When multiple Extractors are running in your system, you can define the sequence number assigned to the Extractor that gathered the records you want to view. If you are unsure of the sequence number of the Extractor, use the STATUS option to determine this. The sequence number of the Extractor coincides with the order in which its information is displayed on the STATUS panel.
DATA SET NAME	Define any variable-block data set containing CMF, SMF, or RMF. records only when NO or blank is defined as the DATA SET TYPE.  Note: If you omit apostrophes, the data set name is prefixed with your TSO user ID.
VOLUME SERIAL	Required if the DATA SET NAME you specify is not cataloged.
DASD UNIT NAME	If the DATA SET NAME you specify is not cataloged and you do not give a DASD UNIT NAME value, CMF MONITOR automatically uses the default value specified in your TSO user ID profile.
SEARCH LIMIT	This is the maximum number of records PERUSE will search per request. The maximum number of records you can specify for a search request is 5000. Default number of records is 500.  Note: A limit is useful when searching a large data set, which can take a great deal of time. This field allows you to control your search.
SYSOUT CLASS	Specifies the JES output class used to print a snap dump image of a record, if one is requested. Default SYSOUT class is A.

## Using the PERUSE Output Panel

Figure 2-7 is an example of the PERUSE Output panel.

**Figure 2-7 PERUSE Output Panel**

----- SRM Performance Group Activity -----										Row 1 to 21 of 21	
COMMAND ==>										SCROLL ==> PAGE	
System	- SYSB	MVS	- SP4.3.0	Monitor	- CPM	Format	- ESA4PRSM				
Record	- 72-1	Samples	- 0	Cycle	- 5000	Duration	- 14:59.531				
Release	- 430	Compat	- BF	Date	- 10JUN03	Start	- 11:45:01				
Product	- 0034	1st: 0070,0068,0001 2nd: 00D8,0078,0001									
										SYS1.MAN1 CAPS ==> ON (ON/OFF)	
--- OFFSET ---											
Triplet Record		Hexadecimal Values					EBCDIC				
----	----	-----	-----	-----	-----	-----	----	----	----	----	
	0000	01500000	DF480041	EB870094	236FE2E8	.&..	....	.g.m	.?SY		
	0010	E2C2D9D4	C6400001	00030000	00000034	SBRM	F ..	....	....		
	0020	003C0001	00000070	00680001	000000D8	....	....	....	...Q		
	0030	00780001	430FD9D4	C6404040	40400114	....	..RM	F	..		
000C	0040	501F0094	236F1459	531F0000	00000000	&..m	.?..	....	....		
001C	0050	00BF0001	40404040	0005000F	E2D7F44B	....	....	....	SP4.		
002C	0060	F34BF040	03E0020A	00000000	00000000	3.0	.\.	....	....		
0000	0070	00000000	0FA0C9C5	C1C9D7E2	D7E30000	....	..IE	AIPS	PT..		
0010	0080	00000000	404040F7	F5F040F5	4BF0F1F0	....	7	50 5	.010		
0020	0090	4BF04040	4040F1F0	4BF0C9C5	C1D6D7E3	.0	10	.0IE	AOPT		
0030	00A0	C2F0C9C5	C1C9C3E2	D7E34040	40404040	B0IE	AICS	PT			

When the PERUSE Output panel appears, the first record in the data set is displayed as the current record. A header area is displayed at the top of the PERUSE Output panel for CMF records and for all SMF records.

- For SMF type 70 through 79 records, the header line contains the SMF record number and title, as well as all fields described in Table 2-7 on page 2-13.
- For CMF and RMF records, the header line contains the record title but not the record number. These records also contain the fields described in Table 2-7 on page 2-13.
- For SMF record types other than 70 through 79, the header area contains the record number and title only; it does not contain any other header fields.

The lower portion of the PERUSE Output panel contains the snap dump image area. The header fields and the snap dump image area are discussed in Table 2-7.

You can scroll through the snap dump image area by using the PF keys, or you can enter one of the values shown in Table 2-8 on page 2-14 on the **COMMAND** line to display a specific record type.

**Note:** CMF record type formats are distributed in Assembler, SAS, and C formats in the BBSAMP data set. See “Accessing Record Created by CMF” in the *CMF MONITOR Batch User Guide* for more information.

## Field Descriptions for the PERUSE Output Panel

The fields displayed in the PERUSE Output Panel are described in Table 2-7.

**Table 2-7** Field Descriptions for the PERUSE Output Panel

Field	Description
SYSTEM	Name of system on which the Extractor that produced this record ran
MVS	Level of MVS operating system on which the Extractor ran
MONITOR	Monitoring mode (CPM, IPM, or RMF)
FORMAT	Format of the current record
RECORD	SMF record type and subtype
SAMPLES	Count of samples taken in the interval
CYCLE	Sampling rate in milliseconds
DURATION	Length of interval - <i>mm:ss.ttt</i>
RELEASE	Corresponding recording product release level for RMF
COMPAT	Internal use only
DATE	Julian date when interval started
START	Time of day when interval started - <i>hh:mm:ss</i>
PRODUCT	Hexadecimal offset to product section
1ST	Hexadecimal offset to first data section after the product section, length of the data section, and number of data sections
2ND	Hexadecimal offset to second data section after the product section, length of the data section, and number of data sections
3RD	Hexadecimal offset to third data section after the product section, length of the data section, and number of data sections
Snap Dump Image Area	Column 1 Hexadecimal offset of each line of data within the area Column 2 Offset within the record Columns 3-6 Hexadecimal dump of the record; each line displays 16 bytes of data Columns 7-10 Character representation of each line of data, enclosed within asterisks (*)

### Using PERUSE Commands

The values shown in Table 2-8 may be entered in the **COMMAND** field.

**Table 2-8 Acceptable Values for the COMMAND Line**

Value	Description
F	Find the specified character string in the displayed record. The specified string can be EBCDIC, hexadecimal, or a triplet. <b>EBCDIC</b> F 's' where <i>s</i> is an EBCDIC string <b>Hexadecimal</b> F X 'h' where <i>h</i> is a hexadecimal value <b>Triplet</b> F t [n] where <i>t</i> is a triplet and <i>n</i> is the nth section of the area pointed to by triplet <i>t</i> . If <i>n</i> is not specified, the first section is displayed. Note: The F command is valid only if you specify NEW in the DISPLAY FORMAT field of the PERUSE menu. If you use the F command without an operand, the last F command issued for this record type is repeated. In the case of a triplet, the F command shows the next section of the triplet.
Gxx	Get next record of type xx. To select a specific record type for display or to change the current type, enter this value, where xx is the type. For example, G70 displays the next type 70 (SMF CPU) record. Type 70 then becomes the current record type.
GFxx	Get first record of type xx. A GFxx command starts the search at the beginning of the data set. For example, GF240 displays the first type 240 record and sets the current type to 240.
G	Get next record of type last specified. Once a record type is established, you need only enter G to display the next record of the current type. This command displays the next record, which then becomes the current record.
GF	Get first record of type last specified. A GF command starts the search at the beginning of the data set.
G00	Get next record, regardless of type. Enter G00 to display the next record, regardless of type, and nullify the current record type.
GF00	Get first record, regardless of type. GF00 displays the first record in the data set and sets the current record type to null.
P	Generate and print a SNAP dump of the record currently displayed.
C	Continue the record search. This value is valid only after the following message appears: xxx RECORDS SEARCHED If the value in the SEARCH LIMIT field is reached before the desired record type is found, searching stops and this message appears. When you see this message, type C to continue your search. Note: The default value for the SEARCH LIMIT field on the PERUSE AND PRINT CMF/SMF/RMF RECORDS panel is 500 records. You can increase the value of this field to avoid reaching the search limit before your search is complete.

**Note:** A blank space after any of the G commands terminates the command; for example: **G73 xx** is the same as **G73**.

### Displaying a Record Subtype

To display a record subtype:

- Step 1** Enter the record type.
- Step 2** Enter a - (hyphen) or , (comma).

**Step 3** Enter the subtype.

For example, **G78-2** or **G78,2** causes the Virtual Storage record type to display; if **G240-1** is specified, the CMF CPU record type is displayed.

## Leaving the PERUSE Option

Press the End key to leave the PERUSE option. You are returned to the CMF Extractor Online Utilities menu.





---

## Chapter 3      Using CMF MONITOR Online to Solve Problems

This chapter explains how to begin using CMF MONITOR Online to detect performance problems or potential problems.

### Using CMF MONITOR Online Easy Menus

CMF MONITOR Online now offers a quick, convenient way to use the product with little introduction and without having to remember view names. This new interface consists of a set of views with two primary menus: the OS/390 Easy Menu, described in “OS/390 Easy Menu”, and the OS/390 Fast Menu, described in “OS/390 Fast Menu” on page 3-8.

The OS/390 Easy Menus are an enhancement of, not a replacement for, existing navigation methods. MAINVIEW can be accessed either from the OS/390 Easy Menu or by typing **MAIN** in the **COMMAND** field and pressing Enter. You can also use MAINVIEW as your default initial display by saving a screen containing MAINVIEW under the name CMF; see “Using Screen Definitions” on page 3-32 for more information.

The major difference you will notice in using the new version of this product is that the key fields of the DEV, JUSE, and WUSE views now hyperlink to menus instead of to data views.

## OS/390 Easy Menu

The OS/390 Easy Menu, shown in Figure 3-1 on page 3-2, is presented as the initial display when you access CMF MONITOR Online. All options on this menu hyperlink to high-level views or submenus and have been given succinct, descriptive names, allowing you to quickly access the data you need.

**Figure 3-1 OS/390 Easy Menu**

```

DDMMYYYY 14:32:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =EZM390=====CXTSTJ=====DDMMYYYY=14:29:50====CMF=====1

                                OS/390 Easy Menu
Activity           Time frame - Interval      Utilities
> System Overview  +-----+ > SYSPROG Services
> Jobs            | Place cursor on | > . Program and I/O Trace
> Devices         | menu item and | > Data Compression
> Data Set Usage  | press ENTER   | > Alarm Management
> Storage         +-----+ > OS/390 Fast Menu
> XCF Monitoring  |           | > RMF-like Menus
> Coupling Facility |           | > Environment Settings
> WLM Workloads   |           | . Return...
> Non-WLM Workloads

```

EZM390 is a menu that divides the data gathered by the CMF Extractor into categories. Options preceded by a . (period) display system data; options preceded by a > (*greater than* sign) display either pop-up menus or other menu views from which you can access a broad variety of information. Those menu options preceded by an \* (asterisk) are exclusive to MAINVIEW for OS/390.

Options on this menu are grouped in two categories: Activity and Utilities. Activity options display views that provide an overview of some aspect of your system's performance. From these overview views, you can selectively display information about a particular element by hyperlinking to a menu specific to the element. Utilities options display submenus from which you can access a broad variety of information.

Each of the OS/390 Easy Menu options is described in the following sections.

## Jobs

The EZM390 Jobs option displays the JUSE view, which summarizes CPU, I/O, and storage utilization for all jobs currently active on your system.

Figure 3-2 on page 3-3 illustrates how you might use an Easy Menu.

The JUSE view, which gives an overview of CPU and storage utilization by jobs on your system, is shown in Figure 3-2.

**Figure 3-2 JUSE View**

C	Jobname	T	SrvClass	%CPU Util.	CPU	%TCB	Avg	SSCH	DmdP	SwpP	DP	ST
				0....10....20	Sec	----	Frame	/Sec	/Sec	/Sec	--	--
	BOLDSK2	S	TSNORM	24.4	67	99.2	788	1.7			F9	NS
	XTSTNPAS	S	STCPAS	4.7	27	93.8	3305	0.4			FF	NS
	DC\$PAS1	S	STCNRM	1.1	17	95.3	1669	4.4			FF	NS
	BHM1PASZ	B	BATNRM	1.0	15	96.2	423	2.7		0.2	FF	NS
	GRS	S	SYSTEM	0.8	12	46.6	1004	0.0	0.0		FD	NS
	BHM3	T	TSNORM	0.8	12	91.1	633	4.7			F7	IN
	*MASTER*	S	SYSTEM	0.7	11	27.5	395	0.2			FF	NS
	BTSKTW3	T	TSNORM	0.6	9	89.9	585	7.3			FF	LO
	CNMNETD	S	STCNRM	0.5	8	89.5	985	0.0			F9	NS
	WLM	S	SYSTEM	0.5	7	86.1	197	0.0			FD	NS
	CATALOG	S	SYSTEM	0.4	7	93.3	948	0.0			FF	NS
	DC\$CASZ	S	STCNRM	0.4	6	96.9	907	1.6		0.1	F9	NS
	IOSAS	S	SYSTEM	0.4	6	99.7	56	0.0			FF	NS
	RAE1	T	TSNORM	0.3	5	90.9	745	1.7			FF	LO
	XTSTNCAS	S	STCPAS	0.3	5	98.7	2017	0.0			FE	NS
	JES2	S	STCNRM	0.3	5	92.0	692	1.3	0.0		F9	NS
	BTSSED3	T	TSNORM	0.3	5	86.5	619	4.6			FF	LO
	ITSTNCAS	S	STCPAS	0.3	4	98.9	2167	0.2			FE	NS

You can see that the job named BOLDSK2 has a very high CPU usage value. To access a diverse variety of information about this job, position the cursor directly on BOLDSK2 in the **Jobname** column and press **Enter**. You can select any job from the JUSE Jobname column to display the Job Menu, EZMJOB, as shown in Figure 3-3.

**Figure 3-3 Job Menu**

Job Menu		
Timeframe - Interval		
Current Job -> BOLDSK2		
Activity	+-----+	Resource Usage
* CPU	Place cursor on	* Data Sets Allocated
. Delay Reasons	menu item and	. Data Sets Used
* I/O	press ENTER	. Detail
. Last 10 intervals	+-----+	* SRM Service Units
. Overview		. Storage Used
* Paging		
* Trending		
. Workflow		
SYSPROG Services		
* Actions		
* Performance		
* Storage		. Return...

EZMJOB allows you to focus your attention on a single job, in this case BOLDSK2. From this menu you can hyperlink to views that offer such job-related information as workflow, reasons for delay, storage used, and data sets used, as well as a comprehensive detail view. To hyperlink, move your cursor to any valid option (those *not* preceded by an asterisk) and press **Enter**.

All options chosen from this menu will be directed at the job in the Current job field.

## Workloads

The EZM390 Workloads option displays the WUSE view, which provides an overview of workload resource usage. Select a particular TSO workload from the WUSE Workload column to display the TSO Workload menu, EZMWTSO, or select a particular workload of any other type to display the Workload Menu, EZMWORK, as shown in Figure 3-4 on page 3-4.

**Figure 3-4 Workload Menu**

---

Workload Menu		
Timeframe - Interval		
Current Workload -> ALLSTC		
Activity	+-----+	Resource Usage
. Overview	Place cursor on	* Service Objectives
. Workflow	menu item and	* SRM Service Units
. Delay Reasons	press ENTER	. Response Times
* CPU	+-----+	. Address Spaces
* I/O		
* Paging		* Administration
* Trending		. Return...

---

EZMWORK and EZMWTSO allow you to focus your attention on a single workload, in this case ALLSTC. From these menus you can hyperlink to views that offer such workload-related information as workflow and reasons for delay.

All options chosen from this menu will be directed at the job in the Current Workload field.

## System Trends

The EZM390 System Trends option displays the SYSOVER view as shown in Figure 3-5, which provides an overview of system performance information organized by interval.

Figure 3-5 SYSOVER View

10JUN2003 13:20:26 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----															
COMMAND ==>										SCROLL ==> PAGE					
CURR WIN ==> 1			ALT WIN ==>												
W1 =SYSOVER=====SYSD=====10JUN2003==13:18:13===CMF=====3															
In	Date	Time	CPU	Chan	Dasd	Page	PgDs	LCU	AvIn	Dm	Pg	Swp	Job	AFC	Dsd
Nm			%Bsy	%Bsy	%Bsy	/Sec	%Use	Qln	Q	%S	%S	/Mn	/Mn		Qln
3	10JUN2003	13:18:06	26.0	19.3	41.1	0.2		0.1	42.3			85		20K	1.0
2	10JUN2003	13:15:00	38.0	37.5	2.7	0.0		0.9	37.3			38		27K	0.0
1	10JUN2003	13:00:00	24.0	22.9	6.1	0.0		0.9	35.2			31		33K	

This view is especially helpful for monitoring system activity over a period of time. From SYSOVER you can hyperlink from any highlighted column to display specific information about some aspect of system performance as it existed in the past.

Devices

The EZM390 Devices option displays the DEV view, which gives an overview of device activity. Position your cursor in the DEV Volser column for a particular device to display the Device Activity Menu, EZMDEV, as shown in Figure 3-6.

Figure 3-6 OS/390 Easy Menu Device Activity Menu

Device Activity Menu		
Current Device -> 208		
Volser -> SYSP08		
This Device	+-----+	All Devices
. Cache Statistics	Place cursor on	. Cache Overview
* Data Sets Allocated	menu item and	. Channel Utilization
. Data Sets in Use	press ENTER	. LCU Overview
. Detailed Info	+-----+	. SMS Overview
. Jobs Delayed by Volume		* Tape Activity
. Jobs Using Volume		
. Overview		
SYSPROG Services		
* I/O Subsystem		
* Utilities		. Return...

EZMDEV allows you to focus your attention on the activity of a single device, in this case device number 208, by selecting an option from the left side of the menu. Options selected from the right side of the menu display information about all devices on your system.

## Coupling Facility

The EZM390 Coupling Facility option is unlike the other Activity options in that it displays a pop-up menu, EZMCF. This pop-up menu, shown in Figure 3-7, allows you to access overview, request, storage, and structure summary views for each coupling facility.

**Figure 3-7 OS/390 Easy Menu Coupling Facility Menu**

OS/390 Easy Menu		
Activity		Tools and Menu
. Jobs	+ Coupling Facility ===+	> Utilities
. Workloads	. Overview Summary	* Console
* System Overview	. Storage Summary	> MAIN View
. System Trends	. Structure Summary	> WLM Monitoring Menu
* Storage	. Request Summary	> OS/390 Fast Menu
. Devices	. Return...	> RMF-like Menus Menu
> Coupling Facility	+-----+	. Return...

For more information about CMF MONITOR Online coupling facility views, see “EZMCF View—Coupling Facility Monitoring” on page 3-12.

## Utilities

When you select the Utilities option, a pop-up menu is displayed, as shown in Figure 3-8.

**Figure 3-8 Utilities Menu**

OS/390 Easy Menu		
Activity		Tools and Menu
. Jobs	+ Utilities =====+	> Utilities
. Workloads	. Historical Data Sets	* Console
* System Overview	> Change System	> MAIN View
. System Trends	> Other Views	> WLM Monitoring Menu
* Storage	. Return...	> OS/390 Fast Menu
. Devices	+-----+	> RMF-like Menus
> Coupling Facility		. Return...

From this pop-up menu, you can access three choices:

- Historical Data Sets, which shows the status of currently available historical data sets.
- Change System, which allows you to change the target, SSI context, and product you are currently monitoring through three Plex Manager views: TGTSEL, CONASEL, and PRODSEL.

- Other Views, which displays a menu of distributed and user-defined views.

**Note:** Other choices are available if you have installed MAINVIEW for OS/390.

## MAIN View

The MAIN View option displays a view that categorizes all CMF MONITOR Online views by the type of information they contain.

**Figure 3-9 CMF MONITOR Online MAIN View**

C View Name	Description
ADMIN	Administrative views
CFMON	Coupling Facility monitoring
DMON	Device data views
EZM390	Primary Menu
RMON	Resource views
USER	User-created views
UTILITY	System utilities
VIEWS	All Views
WLMMON	Sysplex workload monitoring
WORKDEL	Workload delay views

To display a view category, position your cursor on a view in the View Name field and press Enter.

For more information about CMF MONITOR Online MAIN view, see “CMF MONITOR Online MAIN View” on page 3-10.

## WLM Monitoring Menu

The EZM390 WLM Monitoring Menu option displays the WMMENU view, which lists the CMF MONITOR Online workload monitoring views. WMMENU is identical to the WLMMON view, which is accessed from the MAIN view.

For more information on this option, see “WLMMON View—Sysplex Workload Views” on page 3-18.

## OS/390 Fast Menu

The OS/390 Fast Menu, EZMFAST, is an expanded version of EZM390. They both contain the same basic options; however, the options on the OS/390 Easy Menu display broad overviews, whereas the options on the OS/390 Fast Menu offer a more detailed look at CMF MONITOR Online data.

**Figure 3-10 OS/390 Fast Menu, EZMFAST**

```

10JUN2003 14:40:58 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
>W1 =EZM390====EZMFAST==SYSD=====10JUN2003==14:39:21====CMF=====1

OS/390 Fast Menu
Jobs                               Timeframe - Interval          Workloads
. Overview                        +-----+                      . Overview
. Workflow                        | Place cursor on |          . Workflow
. Delay Reasons                  | menu item and   |          . Delay Reasons
. Batch Overview                | press ENTER     |          . Response Time
. TSO Overview                  +-----+          * Service Objectives
                                   > WLM Monitoring Menu

System                             Devices                          Utilities
* Overview                       . Channel Utilization        * SYSPROG Services
* Configuration                  . LCU Overview               * Common Storage
. Trending                      . Cache Overview            * Workload Admin
* SRM Activity                  . DASD Utilization          . Historical Data Sets
* Storage Activity              . SMS Overview              * Alarm Management
. LPAR Utilization              * Tape Activity              * Console
> Coupling Facility             . Device Delays              > Other Views
. Enqueues                      . Return...


```

## RMF-like Menus

The RMF-like Menu option displays a high-level menu with two options: Monitor II Menu and Monitor III Menu. These two options display menus resembling RMF Monitor II and Monitor III menus respectively.

**Figure 3-11 RMF-like Menus**

```

10JUN2003 15:23:58 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
>W1 =EZM390====EZMCMF==SYSD=====10JUN2003==15:22:47====CMF=====1

RMF-like Menu
Menus                               Return
> Monitor II Menu                 +-----+
> Monitor III Menu                | Place cursor on |
                                   | menu item and   |
                                   | press ENTER     |
                                   +-----+
                                   . Return...


```



# Using CMF MONITOR Online Views

This section explains how to use CMF MONITOR Online views to find out where potential problems are occurring and why. You may find that your questions, once answered, lead to more questions. You might be able to answer them using predefined hyperlinks, or you might need to specify a new view name in the **COMMAND** field.

Refer to the online help to find the information you need about a particular view. The help contains information about each field within the view, as well as existing hyperlinks that will take you to other views.

## CMF MONITOR Online Menu Views

There are more than 75 views in CMF MONITOR Online that provide device, workload delay, and resource data about particular areas of your system. To help you select a view containing the data you need, CMF MONITOR Online provides menu views that you use to select views. CMF MONITOR Online menu views are as follows:

**MAIN**See “CMF MONITOR Online MAIN View” on page 3-10 for more information.

**ADMIN**See “ADMIN View—Administrative View Selection” on page 3-12 for more information.

**CFMON**See “EZMCF View—Coupling Facility Monitoring” on page 3-12 for more information.

**DMON**See “DMON View—Device View Selection” on page 3-14 for more information.

**RMON**See “RMON View—Resource View Selection” on page 3-15 for more information.

**USER**Displays the names of views created by CMF MONITOR Online users.

**UTILITY**Displays the SCREENS menu view. See “CMF MONITOR Online Sample Screen Definitions” on page 3-34 for more information.

**WLMMON**See “WLMMON View—Sysplex Workload Views” on page 3-18 for more information.

**WORKDEL**See “WORKDEL View—Workload Delay View Selection” on page 3-20 for more information.

There also are two views, common to all MAINVIEW products, that provide for view or screen selection. One view lists all views in CMF MONITOR Online (or the product for which it is displayed) and the other view lists all available screen definitions for all available MAINVIEW products on your system. These views are as follows:

**VIEWSA** display of all CMF MONITOR Online views (see “CMF MONITOR Online VIEWS View” on page 3-23 for more information).

**SCREENSA** display of all screen definitions (see “CMF MONITOR Online Sample Screen Definitions” on page 3-34 for more information).

## CMF MONITOR Online MAIN View

The MAIN view is the primary menu view listing all of the other CMF MONITOR Online menu views. Menu views do not contain system performance data. They show lists of screens or views that you can select for display. Because there are so many views in CMF MONITOR Online, each view belongs to a view category that represents the type of information being presented. CMF MONITOR Online has six categories of views:

- Administrative
- Coupling Facility
- Device
- Resource
- WLM Sysplex
- Workload delay - You can use the MAIN view to select a view presenting a particular category of information.

Figure 3-12 shows the CMF MONITOR Online MAIN view.

**Figure 3-12 CMF MONITOR Online MAIN View (Repeated figure)**

```

10JUN2003 10:12:43 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =MAIN=====SYSB=====10JUN2003==10:12:41===CMF=====10
C View Name  Description
-----
ADMIN        Administrative views
CFMON        Coupling Facility monitoring
DMON         Device data views
EZM390       Primary Menu
RMON         Resource views
USER         User-created views
UTILITY      System utilities
VIEWS        All Views
WLMMON       Sysplex workload monitoring
WORKDEL      Workload delay views
COMMAND ==>                                SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =MAIN=====SYSB=====10JUN2003==10:12:41===CMF=====10
C View Name  Description
-----
ADMIN        Administrative views
CFMON        Coupling Facility monitoring
DMON         Device data views
EZM390       Primary Menu
RMON         Resource views
USER         User-created views
UTILITY      System utilities
VIEWS        All Views
WLMMON       Sysplex workload monitoring
WORKDEL      Workload delay views

```

You can hyperlink from EZM390 on the MAIN menu to access the OS/390 Easy Menu, from USER on the MAIN menu to see user-customized views, from VIEWS to see a list of all default and user-customized views, and from UTILITY to see the SCREENS view. Table describes the other selection views shown on the MAIN view.

**Table 3-1 Selection Views in CMF MONITOR Online**

If you want to	See
Select an administrative view	"ADMIN View—Administrative View Selection"
Select a coupling facility view	"EZMCF View—Coupling Facility Monitoring" on page 3-12
Select a device delay view	"DMON View—Device View Selection" on page 3-14
Select a resource view	"RMON View—Resource View Selection" on page 3-15
Select a sysplex view	"WLMMON View—Sysplex Workload Views" on page 3-18
Select a workload delay view	"WORKDEL View—Workload Delay View Selection" on page 3-20

## ADMIN View—Administrative View Selection

The ADMIN view lists the CMF MONITOR Online two administrative views and the SECURITY menu view. With administrative views, you can control the OS/390 PAS data collectors and view the status of historical databases. With SECURITY, you can see the security views for CMF MONITOR Online. When the ADMIN view is requested, the view shown in Figure 3-2 is displayed.

**Figure 3-13 CMF MONITOR ADMIN View**

```

10JUN2003 09:05:10 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =ADMIN=====SYSB=====10JUN2003==09:05:10===CMF=====3
C View Name  Description
-----
DCSTAT      List data collector status
DSLSTAT     List historical data sets
SECURITY    Security administration
  
```

The administrative views in CMF MONITOR Online are described in the following table.

**Table 3-2 Administrative Views in CMF MONITOR Online**

If you want to	Display this view
Monitor the status of the OS/390 PAS data collectors; activate or deactivate any of the OS/390 PAS data collectors.	DCSTAT  Note: The OS/390 PAS data collectors execute separately from the CMF MONITOR Extractor samplers. Status information about the CMF MONITOR Extractor samplers is discussed in Chapter 2, “Using CMF MONITOR Extractor Utilities” on page 1.
Find out the time ranges and names of historical data sets; monitor the status of historical data sets.	DSLSTAT
See a list of security views.	SECURITY  Note: For more information about security views, see “SECURITY View—Security Administration Views” on page 3-17.

## EZMCF View—Coupling Facility Monitoring

The EZM390 coupling facility view displays a pop-up menu, EZMCF. This pop-up menu, shown in Figure 3-14, allows you to access overview, request, storage, and structure summary views for each coupling facility.

**Figure 3-14 OS/390 Easy Menu Coupling Facility View**

```

10JUN2003 17:32:08 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =EZM390====EZMCF====EXTSTH====*=====10JUN2003=====13:07:52====MVMVS====1

      Sysplex          Coupling Facility          Structures
      . Overview      +-----+          . Status
      . Status         | Place cursor on |          . Activity
      . Requests       | menu item and  |          . Users
      . Storage        | press ENTER   |          . Return...
      +-----+

```

Each of the options on this menu hyperlinks to status or summary views containing information about each coupling facility. These status and summary views have built-in hyperlinks to more detailed views.

A brief description of each of the coupling facility views is contained in Table 3-3.

**Table 3-3 Coupling Facility Monitoring Views**

View Name	Description
CFINFO	Displays detailed information about the activity of a single coupling facility within a particular system. In general, you hyperlink to this view from CFOVER, CFREQ, CFSTOR, or CFSTRUC, rather than displaying this view directly from the CFMON menu.
CFOVER	Displays an overview of the activity of each coupling facility on each system. In general, you hyperlink to this view from CFOVERZ.
CFOVERZ	Displays an overview of coupling facility activity across all systems connected to that coupling facility, summarized by coupling facility name.
CFREQ	Displays an overview of request activity for each coupling facility on each system. In general, you hyperlink to this view from CFREQZ.
CFREQZ	Displays an overview of request activity for each coupling facility across all systems connected to that coupling facility, summarized by coupling facility name.
CFSTOR	Displays an overview of storage information for each coupling facility on each system. In general, you hyperlink to this view from CFSTORZ.
CFSTORZ	Displays an overview of storage information for each coupling facility across all systems connected to that coupling facility, summarized by coupling facility name.
CFSTRUC	Displays general status information for each structure allocated in a coupling facility on each system. In general, you hyperlink to this view from CFSTRUCZ.
CFSTRUCZ	Displays general status information for each structure allocated in a coupling facility across all systems connected to that coupling facility, summarized by coupling facility name and structure name.

## DMON View—Device View Selection

The DMON view lists the CMF MONITOR Online views that belong to the device activity category. Device views show how devices in your system are interacting with workloads, jobs, or enqueues. When the DMON view is requested, the view shown in the following figure is displayed.

**Figure 3-15 CMF MONITOR DMON View.**

```

10JUN2003 09:11:21 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =DMON=====SYSB=====10JUN2003==09:11:21===CMF=====9
C View Name  Description
-----
CDEV        Devices on Channel Path xx
DEV         Device activity
DEVINFO     Analyze single device
DEVZ        Summarized device activity
LCUINFO     Single Logical Control Unit
LCUSTAT     Analyze Logical Control Units
LDEV        Devices on LCU xxx
PDEV        Devices by pattern vvvvvv
SDEV        Devices on string xx

```

You can display any view listed on this menu if you place your cursor on the view name and press **Enter**. The device views in CMF MONITOR Online are described in Table 3-4.

**Table 3-4 Device Views in CMF MONITOR Online**

If you want to monitor	Display this view
Devices to a channel path	CDEV
All devices	DEV
A single online device	DEVINFO
The summarized activity of each device across systems or time frames	DEVZ
The summarized activity of each device across systems or time frames	DEVSTATZ
A single LCU	LCUINFO
All LCUs	LCUSTAT
All devices on an LCU	LDEV
A pattern of DASD devices by volser	PDEV
A string of devices	SDEV

## RMON View—Resource View Selection

The RMON view lists CMF MONITOR Online resource views. You can use resource views to monitor resource (CPU, I/O, and storage) usage.

**Note:** CMF MONITOR Online resource views provide the same information as RMF MONITOR II (RMFMON), in addition to information unique to CMF.

When the RMON view is requested, the view shown in Figure 3-16 is displayed.

**Figure 3-16 CMF MONITOR RMON View**

```

10JUN2003 09:16:55 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =RMON=====SYSB=====10JUN2003==09:16:55=CMF=====30
C View Name  Description
-----
ARD          Address space resource data
ASD          Address space state data
ASRM         Address space SRM data
CACHSTAT     Analyze Cache Devices
CACHSTAZ     Summarized Cache Activity
CHANNEL      Analyze All Channel Paths
DDMN         SRM 4.2 domain activity
DSIO         Data set I/O activity
IOQ          I/O queuing activity
JSTOR        Interval job storage usage
JSUM         Jobs across intervals
JUPE         Interval job resource usage
LPPARSTAT    Analyze LPARS/Domains
PGDINFO      Analyze single page data set
PGSPP        Page data set status
PGSPPZ       Page data set status - Summary
PGSPS        Swap data set status
SENQ         System enqueue activity
SENQR        System reserve activity
SMSINFO      Analyze single Storage Group
SMSSTAT      Analyze SMS Storage Groups
SPAG         System paging activity
SRCS         Storage/Processor/SRM overview
STORC        Common Storage By Job
STORCR       Common Storage Remaining
STORCS       Common Storage Summary
SWDINFO      Analyze single swap data set
SYSOVER      System Overview Summary
TRX          Transaction activity
WSTOR        Interval wkld storage usage
WUSE         Interval wkld resource usage

```

Resource views in CMF MONITOR Online are described in Table 3-5.

**Table 3-5 Resource Views in CMF MONITOR Online (Part 1 of 2)**

If you want to monitor	Display this view
Resources being used by a job	ARD
Summary of Resources being used by a job	ARDZ

**Table 3-5 Resource Views in CMF MONITOR Online (continued) (Part 2 of 2)**

<b>If you want to monitor</b>	<b>Display this view</b>
Status of Resources being used by a job	ASD
Summary of Status of Resources being used by a job	ASDZ
SRM activity for a job	ASRM
Summary of SRM activity for a job	ASRMZ
Cache device activity	CACHSTAT
Summarized cache device activity	CACHSTAZ
Channel path activity	CHANNEL
Current SRM domains	DDMN
I/O queuing activity	IOQ
Storage delays for jobs	JSTOR
Performance of a single job over multiple intervals	JSUM
Job resource usage	JUSE
CPU utilization of PR/SM or MDF environment	LPARSTAT
Activity for a single page data set	PGDINFO
Activity for all page data sets	PGSPP
Activity for all swap data sets	PGSPS
Enqueue contention activity	SENG
Reserve enqueue contention activity	SENGR
Performance of a single SMS storage group	SMSINFO
Performance of all SMS storage groups	SMSSTAT
System paging activity	SPAG
All storage, processor, and SRM activity	SRCS
Current amount of common storage	JCSA STORC
Amount of common storage remaining for terminated jobs	CSAREM STORCR
Summary of the current amount of common storage being used by your system	CSASUM STORCS
Activity for a single swap data set	SWDINFO



## SECURITY View—Security Administration Views

The SECURITY view lists the CMF MONITOR Online security views. Security views allow you to protect your CMF MONITOR Online resources.

**Note:** A detailed explanation of how to use the security features is in the *Implementing Security for MAINVIEW Products*.

When the SECURITY view is requested, the view shown in Figure 3-17 is displayed.

**Figure 3-17 SECURITY View**

```

10JUN2003 14:23:22 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =SECURITY=====SYSC=====10JUN2003==14:23:21===CMF=====2
C View Name  Description
-----
SERDEF      Security Resource Def Manager
SERDEFL     Security Resource Def List

```

From the SECURITY view, you can hyperlink to SERDEFL, which looks similar to the screen in Figure 3-18.

**Figure 3-18 SERDEFL View**

```

10JUN2003 06:49:13 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =SERDEFL=====SYSC=====10JUN2003==06:49:13===CMF=====1
CMD Product  Member Description
---
CMF          00      Empty member--Select to create

```

This view shows a list of suffixes of BBPARM members BBMTRNxx, where security policies are defined. If you have not made any modifications to your security policies, the SERDEFL view contains only the 00 suffix. To see the security policy information that is defined for a particular product by default, type S in the line command field next to the product name and press Enter. You should see the SERDEF view, as shown in Figure 3-19 on page 3-18.

**Figure 3-19 SERDEF View**

```

10JUN2003 06:50:46 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
>W1 =SERDEF=====SYSC=====*(00 BROWSE )====CMF=====64
CMD Description
-----
Default - Table Data
Default - Any Table Actions
Default - Primary Actions (All Views)
Default - Specific Table Action
Any Action (MMVMVS or CMF Views)
Addr Space - Table Data
Addr Space across interval - Table Data
Addr Space Device Use/Delay- Table Data
Addr Space Enq Use/Delay - Table Data
Addr Space in Workload - Table Data
Channel Path - Table Data
Channel Path on LCU - Table Data
Common Storage - Table Data
Coupling Facility - Table Data
CMF Reserve - Table Data
CMF System Interval - Table Data
CMF XDS API CX10XDQY/CX10XDRC Actions
CMF XDS API CX10XDGS Action
CPU - Table Data

```

In the SERDEF view, notice a change to the window information line. The date and time field has been replaced by the Edit Mode Status field. This is shown as (00 BROWSE ) and it tells you that you are in BROWSE mode.

**Note:** The other available mode is EDIT. To get into EDIT mode, type **EDIT** in the **COMMAND** field and press Enter.

The SERDEF view shows all of the security definitions set up for each product resource. If you want to change security definitions for product resources, you can do so by typing **EDIT** in the **Command** field and pressing Enter. Once you are in edit mode, you can issue a line command of **C** next to the definition you want to update. This displays a pop-up panel that allows you to change the class, entity name, access intent level, and logging characteristics of a resource definition.

For more information about securing CMF views, refer to the security section in the *Implementing Security for MAINVIEW Products*.

## WLMMON View—Sysplex Workload Views

The WLMMON view lists the CMF MONITOR Online sysplex workload monitoring views. When the WLMMON view is requested, the WLM Monitoring view shown in Figure 3-20 is displayed.

**Figure 3-20 WLM Monitoring Menu**

```

10JUN2003 13:10:49 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =WLMMON=====SYSD=====10JUN2003==13:10:49==CMF=====1

                                WLM Monitoring
                                +-----+
                                |         |
                                | Place cursor on |
                                | menu item and   |
                                | press ENTER      |
                                +-----+

WLM Policy Status
. Sysplex Summary
. Sysplex Trends
. System Summary

WLM WorkManagers
. Subsystem Delays
. Server Spaces

                                Goal Mode Conversion
                                . Resources by Period

Workload Overview
. WLM Workloads
. Service Classes
. Report Classes
. Periods
. Goals Not Met
. OS/390 Delays
. Return...

```

CMF provides a set of views for WLM (Workload Monitor) monitoring, service policy management, and service policy analysis and monitoring. WLM SYSPLEX views are especially geared towards WLM workloads in sysplex configurations; however, they also can be used effectively in a single-image target context. The menu-driven interface makes WLM SYSPLEX views easy to use, and the SSI and data summarization features make them flexible, powerful, and conservative of resources.

**Note:** The WLMMON view is identical to the WLM Monitoring Menu option on EZM390, which displays the WMMENU view.

There are eighteen views in this category. Table 3-6 briefly describes each one.

**Table 3-6 Resource Views in CMF MONITOR Online (Part 1 of 2)**

If you want to monitor	Display this view
WLM monitoring views	WLMMON
Status of WLM indicators over time, at the sysplex level	WMSPLX
Summary of WLM indicators at the sysplex level	WMSPLXZ
Status of WLM indicators at the system level	WMSYS
Sysplex-level information for WLM workloads	WMWKLD
Sysplex-level information for WLM service classes	WMSCLS
System-level information for WLM report classes	WMRCLS
Sysplex-level information for WLM report classes summary	WMRCLSZ
System-level information for WLM service class periods	WMPRD
Sysplex-level information for WLM service class periods summary	WMPRDZ
WLM service class period response time distribution	WMRTD
Sysplex-wide subsystem work manager activity summary	WMWKMZ
Sysplex-wide subsystem work manager delays, grouped by performance period	WMWKM
WLM service class periods or performance group periods	WMCNVT

**Table 3-6 Resource Views in CMF MONITOR Online (continued) (Part 2 of 2)**

If you want to monitor	Display this view
WLM service class periods or performance group periods summary	WMCNVTZ
Delays for address spaces serving a service class	WMASSC
Delays by period for WLM service class periods	WMDLY
Delays by period for WLM service class periods summary	WMDLYZ

## WORKDEL View—Workload Delay View Selection

The WORKDEL view lists the CMF MONITOR Online workload delay views. Workload delay views show contention information for various types of workload delays and monitor how efficiently sessions and jobs are being served by your system.

**Note:** A session in workload delay reporting is equal to the total amount of time that any address space was active and the OS/390 PAS was executing.

When the WORKDEL view is requested, the view shown in Figure 3-21 is displayed.

**Figure 3-21 CMF MONITOR WORKDEL View**

```

10JUN2003 09:38:54 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =WORKDEL=====SYSB=====10JUN2003==09:38:54====CMF=====32
C View Name  Description
-----
DDJOB       Devices delaying jobs
DUJOB       Devices used by jobs
JDDEV       Jobs delayed by devices
JDELAY      Interval job delays
JDELAYZ      Summarized job delays
JDENQ       Jobs delayed by enqueues
JFLOW      Interval job flow and delay
JFLOWZ      Summarized job workflow
JHSMD       HSM related delays
JINFO       Detailed job delay information
JJESD       JES related delays
JMSGD       WTOR related delays
JSRMD       Interval job SRM delays
JSTORD      Interval job storage delays
JSUBD       Subsystem related delays
JUDEV       Jobs using devices
JUENQ       Jobs using enqueues
JXCFD       XCF related delays
WDELAY      Interval workload delays
WDELAYZ      Summarized workload delays
WFLOW      Interval workload flow/delay
WFLOWZ      Summarized workload workflow
WSRMD       Interval workload SRM delays
WSTORD      Interval wkld storage delays

```

Workload delay views in CMF MONITOR are described in Table 3-7.

**Table 3-7 Workload Views in CMF MONITOR Online**

If you want to monitor	Display this view
Devices delaying jobs	DDJOB
Devices used by jobs	DUJOB
Jobs delayed by devices	JDDEV
Delays for jobs	JDELAY
Delays for each job summarized across systems or time frames	JDELAYZ
Jobs using enqueue	JDENQ
Workflow and delay for jobs	JFLOW
Workflow and delay for each job summarized across systems or time frames	JFLOWZ
HSM-related delays	JHSM
Delay reasons for an address space	JINFO
JES-related delays	JJESD
WTOR-related delays	JMSGD
SRM delays for jobs	JSRMD
Storage delays for jobs	JSTORD
Subsystem-related delays	JSUBD
Jobs using devices	JUDEV
Jobs delayed by enqueue	JUENQ
XCF-related delays	JXCFC
Workload delays	WDELAY
Delays for each workload summarized across systems or time frames	WDELAYZ
Workload flow and delay	WFLOW
Flow and delay for each workload summarized across systems or time frames	WFLOWZ
SRM delays for workloads and delays	WSRMD
Storage delays for workloads	WSTORD

## Viewing Inactive Jobs

All job views (view names that start with the letter J) contain a keyword parameter that allows you to view inactive jobs. To view inactive jobs, type *viewname* **ASGFL1C(status)** in the **COMMAND** field, where *viewname* is the name of a view that begins with the letter J and *status* is one of the following values:

**ENDED**Jobs that have ended normally

**ABENDED**Jobs that have abended

**GONE**Jobs that have not ended, but are no longer active

For example, type

**JFLOW ASGFL1C(ENDED)**

to see all jobs that ended normally.

## Displaying Workload Information

### Displaying Workload Information:

CMF MONITOR Online supports the WLM enhancements featured in MVS/SP 5.1 and later, while continuing to support workloads defined outside of WLM (in MVS/SP 4.3 and earlier versions, as well as in MVS/SP 5.1 and later when running in compatibility mode).

When your MVS/SP 5.1 or later system is running WLM in goal mode

- CMF MONITOR Online automatically creates a service class workload (SCL) for each service class defined in the WLM active service policy. The CMF MONITOR Online service class workload derives its name from the WLM service class.
- CMF MONITOR Online automatically creates a composite workload (WKL) for each WLM workload defined in the active service policy. The CMF MONITOR Online WKL workload derives its name from the WLM workload (a composite of service classes).

When you are using a pre-WLM MVS system, or when you are running WLM in compatibility mode, CMF MONITOR Online automatically creates a performance group workload (PGR) for each performance group defined in the current IEAIPSxx member.

CMF MONITOR Online workload views include a three-character Typ (workload type) field. Workload types include

- Service Class (SCL)
- OpenEdition MVS (OMV)
- APPC (ASC)
- WLM Workload (WKL).

## CMF MONITOR Online VIEWS View

CMF MONITOR Online VIEWS view contains a list of all views available in CMF MONITOR Online. You can use the VIEWS view to select any view.

Every MAINVIEW product contains a VIEWS view, and the library where view definitions are located is shared among all users of CMF MONITOR Online on a system. If you customize a view, it is saved in this sitewide library and becomes available to all CMF MONITOR Online users of the same system. This means any user can add or delete a customized view in VIEWS.

If you prefer not to share views that you create, you can allocate a user view library for maintaining your customized views. Any views located in your user library appear on your display of the VIEWS view only (see the *MAINVIEW Administration Guide* or contact your system administrator for information about setting up a user view library).

All default views for CMF MONITOR Online are listed in Table 3-8.

**Table 3-8 CMF MONITOR Online Default Views (Part 1 of 5)**

View Name	View Title
ADMIN	Administrative views
ARD	Address space resource data
ASD	Address space state data
ASRM	Address space SRM data
CACHSTAT	Analyze cache devices
CACHSTAZ	Summarized Cache activity
CDEV	Devices on Channel Path xx
CFINFO	Coupling Facility detail information
CFMON	Coupling Facility monitoring
CFOVER	Coupling Facility overview
CFOVERZ	Coupling Facility overview summary
CFREQ	Coupling Facility request activity
CFREQZ	Coupling Facility request activity summary
CFSTOR	Coupling Facility storage utilization
CFSTORZ	Coupling Facility storage utilization summary
CFSTRUC	Coupling Facility structure activity
CFSTRUCZ	Coupling Facility structure activity summary
CHANNEL	Analyze all channel paths

**Table 3-8 CMF MONITOR Online Default Views (continued) (Part 2 of 5)**

<b>View Name</b>	<b>View Title</b>
DCSTAT	List data collector status
DDJOB	Devices delaying jobs
DDMN	SRM 4.2 domain activity
DEV	Device activity
DEVINFO	Analyze single device
DEVZ	Summarized device activity
DIAGMSG*	Message Diagnostic Status
DMON	Device data views
DSIO	Data set I/O activity
DSLST	List historical data sets
DUJOB	Devices used by jobs
EZMCCF	Coupling Facility Menu
EZMCMF	RMF-like Primary Menu
EZMDEV	Device Activity Menu
EZMFAST	Fast Menu
EZMFASTV	Fast Menu - Views
EZMFCCF	Fast Menu - Coupling Facility
EZMJOB	Job Activity Menu
EZMON2	Monitor II-like Menu
EZMON3	Monitor III-like Menu
EZMUTIL	Utilities Menu
EZMUTILC	Utilities Menu - Change System
EZMUTILV	Utilities Menu - Views
EZM390	Primary Menu
EZMWLM	System workload monitoring - Interval
EZMWORK	Workload Activity Menu
EZMWTSO	TSO Wkld Activity Menu
IOQ	I/O queuing activity
JDDEV	Jobs delayed by devices
JDELAY	Interval job delays
JDELAYZ	Summarized job delays
JDENQ	Jobs delayed by enqueues
JFLOW	Interval job flow and delay
JFLOWZ	Summarized job workflow
JHSMD	HSM related delays



**Table 3-8 CMF MONITOR Online Default Views (continued) (Part 3 of 5)**

<b>View Name</b>	<b>View Title</b>
JINFO	Detailed job delay information
JJESD	JES related delays
JMSGD	WTOR related delays
JSRMD	Interval job SRM delays
JSTOR	Interval job storage usage
JSTORD	Interval job storage delays
JSUBD	Subsystem related delays
JSUM	Jobs across intervals
JUDEV	Jobs using devices
JUENQ	Jobs using enqueues
JUSE	Interval job resource usage
JXCFD	XCF-related delays
LCUINFO	Single Logical Control Unit
LCUSTAT	Analyze Logical Control Units
LDEV	Devices on LCU xxx
LPARSTAT	Analyze LPARS/Domains
MAIN	CMF MONITOR Online Main Menu
PDEV	Devices by pattern vvvvvv
PGDINFO	Analyze single page data set
PGSPP	Page data set status
PGSPS	Swap data set status
RMON	Resource views
SCREENS	Screens Display
SDEV	Devices on string xx
SECURITY	Security administration
SENQ	System enqueue activity
SENQR	System reserve activity
SERDEF	Security Resource Def Manager
SERDEFD	Security Resource Def Detail
SERDEFE	Security Resource Def Detail
SERDEFL	Security Resource Def List
SMSINFO	Analyze single Storage Group
SMSSTAT	Analyze SMS Storage Groups
SPAG	System paging activity
SRCS	Storage/Processor/SRM overview

**Table 3-8 CMF MONITOR Online Default Views (continued) (Part 4 of 5)**

<b>View Name</b>	<b>View Title</b>
JCSA, STORC	Common Storage By Job
CSAREM, STORCR	Common Storage Remaining
CSASUM, STORCS	Common Storage Summary
SWDINFO	Analyze single swap data set
SMSSTAT	Analyze SMS Storage Group
SYSOVER	System Overview Summary
TRACE*	Trace Status Display
TRX	Transaction activity
USER	User-created views
UTILITY	System utilities
VIEWS	All Views
WDELAY	Interval workload delays
WDELAYZ	Summarized workload delays
WFLOW	Interval workload flow/delay
WFLOWZ	Summarized workload workflow
WLMMON	Sysplex workload monitoring
WMASST†	WLM server address spaces
WMCNVT	Interval WLM conversion
WMCNVTZ	Interval WLM conversion summary
WMDLY	Interval WLM Period delay
WMDLYZ	Interval WLM Period delay summary
WMMENU	WLM Monitoring main menu
WMPRD†	WLM Service Class Periods
WMPRDZ†	WLM Service Class Periods summary
WMRCLS†	WLM Report Class overview
WMRCLSZ†	WLM Report Class overview summary
WMRTD†	WLM Period response time dist.
WMSCLS†	WLM Service Class overview
WMSPLX†	WLM Policy - SYSPLEX overview
WMSPLXZ†	WLM Policy - SYSPLEX summary
WMSYS†	WLM Policy - System overview
WMWKLD†	WLM Workload overview
WMWKM†	WLM Work manager delays
WMWKMZ†	WLM Work manager summary
WORKDEL	Workload delay views

**Table 3-8 CMF MONITOR Online Default Views (continued) (Part 5 of 5)**

View Name	View Title
WSRMD	Interval workload SRM delays
WSTOR	Interval wkld storage usage
WSTORD	Interval wkld storage delays
WUSE	Interval wkld resource usage

\*For more information, see the [CMF MONITOR Online Default Views \(continued\) \(Part 5 of 5\)](#) page.

†Hyperlinking to this view from the WLMON menu provides you with more meaningful information than simply typing this viewname in the Command field.

## Displaying Data from the Past

To display data from the past (or *historical data*), use the **TIME** command. The **TIME** command establishes the time frame for data displayed in a particular window. Afterward, any view output displayed in that window displays the data as it existed during that period of time—you do not have to enter **TIME** again.

In addition, you can choose to summarize the historical data over a given time frame, so you can see a summary of what happened over the space of two days, three hours, or whatever duration you request for that time frame.

See “Examples of Using the **TIME** Command:” on page 3-31 for some samples.

## Using the **TIME** Command

The syntax for the **TIME** command is

**TIME [date time [duration|NEXT|PREV]]**

where

**date** Is the end date of the data you want to look at. This is a required parameter.

Specify the date in the same format as the current date, which always appears in the upper left corner of the screen.

**Note:** You can change the format of the date by selecting option 0 on the MAINVIEW Selection Menu, selecting option 1 on the Terminal Session Parameter Select screen, and then selecting option 4, Date, on the MAINVIEW Parameter Editors screen.

**time**Is the end time of the data you want to look at. This is a required parameter.

Specify the time in the format hh:mm.

**duration**Is the length of time you want your data to span. This is an optional parameter. The default is one recording interval (usually 15 or 30 minutes).

Specify the duration in the format nnnnu, where

**nnnn**Indicates the number of hours, minutes, or intervals in the duration.

**u**Indicates the time unit of the duration: I (intervals), M (minutes), or H (hours).

**NEXT**Is specified **instead** of the duration value. NEXT uses the duration parameter currently in effect to cycle forward by the duration amount.

**PREV**Is specified **instead** of the duration value. PREV uses the duration parameter currently in effect to cycle backward by the duration amount.

**Note:** In place of the date, time, or duration parameters, you can use

**An asterisk (\*)** To specify the default value. The default values are the current date, the current time, and one recording interval.

**An equal sign (=)**To specify the currently requested date, time, or duration.

The TIME command can be entered by using positional parameters or by using a panel.

When positional parameters are used, the command has the following syntax:

```
TIME 10JUN2003 14:30 30M
```

The TIME command is shown in Figure 3-22.

**Figure 3-22 TIME Command, Used with Positional Parameters**

```

10JUN2003 14:38:06 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> TIME 10JUN2003 14:30 30M                                SCROLL ==> CSR
CURR WIN ==> 1                ALT WIN ==>
W1 =JOVER=====DXTSTG==*=====10JUN2003==14:38:06===MVMVS=====8
C Jobname  T SrvClass      Total Delay %   %CPU  EXCP DmdP SwpP    Avg    SU
-----
BITKCYWI  S STCNRM        76.76             0.0   0.7             587    51
GRS       S GRS          11.72             0.6             1158   538
XCFAS     S SYSTEM        3.77             0.7             1786  1002
BMVRTR2   T TSONRM        3.35             0.3   3.6   0.2       289    433
AAODJ41D  S STCNRM        3.14             0.3   1.5             490    392
AAONS41   S STCNRM        3.14             0.3   1.2             419    363
MQMPASHN  S STCNRM        2.51             0.3   2.2   1.1      2994   1089
MQMPASRK  S STCNRM        2.51             1.0   3.6   0.6      2613   4491

```

When the panel is used, it has the following appearance:

**Figure 3-23 TIME Command, Used in a Panel**

```

10JUN2003 14:38:06 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>                                SCROLL ==> CSR
CURR WIN ==> 1                ALT WIN ==>
W1 =JOVER=====DXTSTG==*=====10JUN2003==14:38:06===MVMVS=====1==8
----- SET TIME FRAME -----
COMMAND ==>

Requested Time Frame:

End Date ==> 10JUN2003      (*, =, or ddmmmyyyy)
End Time ==> 14:30         (*, =, or hh:mm)
Duration ==> 30M           (*, =, nnnnI, nnnnM, nnnnH, NEXT, or PREV)

Data in the Requested Time Frame:

Interval ==> 15M           (Length, in minutes, of one interval)
End Date ==> 10JUN2003     (End date of data)
End Time ==> 14:38         (End time of data)
Duration ==> 15M           (Minutes spanned by data)

Type END to set the window's requested time frame
CANCel to quit without setting
-----
XTSTGPAS  S STCPAS        1.26             0.6   0.3   0.1      1479   1689
OLTGCAS   S STCNRM        1.05             0.2             1421   765
XTSTGCAS  S STCPAS        1.05             0.1             714    258
BITECH2   T TSONRM        1.05             0.7   2.9             575    688
DC$HSMD   S STCNRM        1.05             0.1   0.8   0.9       190    114

```

Notice that 10JUN2003 is the end date parameter, 14:30 is the end time parameter, and 30M is the duration parameter.

Permissible specifications for the end date parameter are as follows:

**Table 3-9 End Date Parameter - Permissible Specifications**

Specifications	Explanation
DDMMYYYY	An explicit date, as shown in the example above.
*	Today's date.
=	Current value of the end date parameter.

The end date parameter will implement the following additional specifications:

**Table 3-10 End Date Parameter - Additional Specifications**

Specifications	Explanation
TODAY or TDAY	Today's date, equivalent to specifying *.
YESTERDAY or YDAY	Yesterday's date.
LASTSUNDAY or LSUN	Last Sunday's date.
LASTMONDAY or LMON	Last Monday's date.
LASTTUESDAY or LTUE	Last Tuesday's date.
LASTWEDNESDAY or LWED	Last Wednesday's date.
LASTTHURSDAY or LTHU	Last Thursday's date.
LASTFRIDAY or LFRI	Last Friday's date.
LASTSATURDAY or LSAT	Last Saturday's date.
ENDOF MONTH or EOM	Last day of the previous month.
ENDOFYEAR or EOY	Last day of the previous year.
LASTWEEKDAY or LWKD	Most recent weekday prior to today.
LASTWEEKENDDAY or LWKED	Most recent weekend day prior to today.
FIRSTOFMONTH or FOM	First day of the current month.
FIRSTOFWEEK or FOW	First day of the current week (Monday).
FIRSTOFYEAR or FOY	First day of the current year.
FIRSTWEEKDAY or FWKD	First day of the current week, equivalent to FIRSTOFWEEK
FIRSTWEEKENDDAY or FWKED	First day of the most recent weekend (Saturday).
f*-nnn	nnn days prior to today, up to 365 days.

Permissible specifications for the duration parameter are as follows:

**Table 3-11 Duration Parameter - Permissible Specifications (Part 1 of 2)**

Specifications	Explanation
*	Current time.
PREV	Previous interval.

**Table 3-11 Duration Parameter - Permissible Specifications (Part 2 of 2)**

Specifications	Explanation
NEXT	Next interval.
9999I	Up to 9,999 intervals.
9999M	Up to 9,999 minutes.
9999H	Up to 9,999 hours.

The duration parameter will implement the following additional specifications:

**Table 3-12 Duration Parameter - Additional Specifications**

Specifications	Explanation
999D	Up to 416 days.
99W	Up to 59 weeks.
TODAY or TDAY	Intervals back to midnight (today's intervals).
MONTH	One month back from the end date.

Historical data is displayed as it existed at the *end* of the interval containing the specified time. For example, if you specified 10:07 on the TIME command, the views displayed would say 10:15 (and not 10:07), since 10:15 is the end of the interval containing the time 10:07, assuming synchronized intervals that are 15 minutes long.

When you use the TIME command to retrieve historical data, the window information line is updated to the new date and time, and the window identifier changes from W to H.

### Examples of Using the TIME Command:

The following examples demonstrate several different uses of the TIME command.

**Example 1:** Assume that today's date is June 17, 2003, and the date format you have selected is *ddmmmyyyy*. To retrieve data from one week ago at 9:25 am, type

**TIME 10JUN2003 09:25**

This displays data that was recorded at the end of the interval that contains 9:25; that is, the interval spanning 9:15 to 9:30.

**Example 2:** To display data from the next interval on the same date, type

**TIME == NEXT**

The NEXT parameter cycles forward one recording interval (the default requested duration) from the date and time last requested. Specifically, data from June 9 during the interval 9:30-9:45 is displayed. Conversely, the PREV parameter is used to cycle backwards through recording intervals.

**Note:** You may find it useful to set one PF key to issue `TIME == NEXT` and another PF key to issue `TIME == PREV`. This will allow you to cycle quickly through recording intervals without having to manually type the TIME command and all its parameters.

**Example 3:** To display data from the next day during the same time period, type

**TIME 10JUN2003 ==**

The equal signs in these positions retain the time you requested last and the duration you last requested, 1 interval.

**Example 4:** To display data that includes the 30 minute interval ending at 8:00 on June 10, type

**TIME 10JUN2003 08:00 30M**

**Example 5:** To display data from earlier today at 9:00, type

**TIME \* 9:00**

The asterisk in this position indicates the current date. The duration parameter is not specified, so the default value of one interval is used.

**Example 6:** To re-establish the current time frame spanning a single interval, type

**TIME \* \***

## Using Screen Definitions

With the MAINVIEW window interface, you can divide the display area in up to 20 windows, save the screen under a unique name, and then redisplay the complex screen using just one command.



**Creating a Screen Definition:**

To create a screen definition:

- Step 1 Use the SAVEScr command to display the Save Screen Definition panel.
- Step 2 Supply a unique name for the screen in the **Name** field as shown:

**Figure 3-24 Save Screen Panel**


---

```

BMC SOFTWARE INC----- SAVE SCREEN DEFINITION -----
COMMAND  ==>                                     SCROLL ==> PAGE

Please confirm Screen Definition Parameters:

Name      ==> SYSOVER2
Description ==> Multi-system overview

Replace   ==> N          (Y/N)

Type END to save screen definition
      CANCEL to quit without saving

```

---

Enter a description in the `Description` field if you want.

**Note:** If you create a screen definition on a large display monitor, and then try to display that screen definition on a smaller monitor, you will receive an error message. Screens created on a smaller monitor, however, always expand to fill the area afforded by a larger display.

**Redisplaying a Screen Definition:**

To redisplay a screen definition, choose one of these methods:

- Enter the command:

**SCReen name:**

where **name** is the name you selected on the Save Screen panel.

- Display the SCREENS view, which lists all the screen definitions that have been saved for your user session, and then use the S line command to select the screen definition you want.

**Note:** Your MAINVIEW product administrator may have set up a sitewide screen definition library so that all users can access a common set of screen definitions. See your administrator if you want to contribute to this library. If you have administrator authorization, see the *MAINVIEW Administration Guide*.

## CMF MONITOR Online Sample Screen Definitions

CMF MONITOR Online SCREENS view contains a list of all screen definitions available in CMF MONITOR Online. You can use the SCREENS view to select any screen in CMF MONITOR Online. A screen definition is a saved configuration of windows positioned in the display area and the views that appear within those windows.

Every MAINVIEW product contains a SCREENS view, and the screen definition library is shared among MAINVIEW users. This means any user can add or delete a screen definition in SCREENS. If other MAINVIEW products are installed on the same system, the screen definitions for all MAINVIEW products appear in the SCREENS view.

If you prefer not to share screen definitions that you create, you can allocate a user screen library for maintaining your customized screen definitions. Any definitions located in your user library appear on your display of the SCREENS view only (see the *MAINVIEW Administration Guide*, or contact your system administrator for information about setting up and allocating a user screen library).

Figure 3-25 is an example of the CMF MONITOR Online SCREENS view.

**Figure 3-25 CMF MONITOR SCREENS View**

```

10JUN2003 09:00:47 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
W1 =SCREENS=====SYSB=====10JUN2003==09:00:46====CMF=====8
C Name      Description      Userid
-----
CMF          Unknown          Unknown
CMFDELAY     Unknown          Unknown
CMFIO        Unknown          Unknown
CMFOVER      Unknown          Unknown
CMFSTOR      Unknown          Unknown
SYSRTD       Unknown          Unknown
SYSSUM       Unknown          Unknown
SYSWKM       Unknown          Unknown

```

When you display the SCREENS view for the first time, you will see that eight screen definitions have already been defined. These screens were copied from BBSAMP to *hilevel*.SBBSDEF during AutoCustomization.

The information presented in each of the CMF MONITOR Online sample screen definitions is described in the following list.

**CMF**

The CMF screen contains the EZM390 view. This is your initial display when you log on to CMF MONITOR Online. To change your initial display to something other than EZM390, save a screen definition containing the desired view or screen and name it CMF.

**CMFOVER**

The CMFOVER screen contains the MAIN, SYSOVER, SRCS, SPAG, and WDELAY views. This display provides you with an overview of your system's performance and summarizes storage, CPU utilization, and job delay information.

**CMFDELAY**

The CMFDELAY screen contains the WFLOW, JFLOW, WDELAY, and JDELAY views. This display summarizes workflow and delays for jobs and workloads over an interval period. The current interval information is displayed unless the TIME command is issued.

**CMFIO**

The CMFIO screen contains the CHANNEL, LCUSTAT, JDDEV, DDJOB, JUDEV, and DUJOB views. This display summarizes the performance of LCUs (logical control units) and channel paths, which allows you to determine if the I/O configuration is in balance for these devices. Overview information is also presented for jobs delayed due to device contentions, devices causing delays, which jobs are contending for which devices, and which jobs are using which devices. The current interval information is displayed unless the TIME command is issued.

**CMFSTOR**

The CMFSTOR screen contains the SRCS, SPAG, WSTORD, and WSTOR views. This display summarizes system and workload storage utilization, paging activity, and workload delays due to high paging rates caused by storage delays. The current interval information is displayed unless the TIME command is issued.

**SYSRTD**

The SYSRTD screen contains the WMRTD and WMSCLS views. This display provides sysplex-level information about WLM service classes, including period response time distribution.

**SYSSUM**

The SYSSUM screen contains the WMSPLX, WMSYS, and WMPRD views. This display provides information about WLM service policies at the sysplex and system levels and provides data for WLM service class periods.

**SYSWKM**

The SYSWKM screen contains the WMWKMZ, WMWKM, and WMASSC views. This display summarizes subsystem work manager activity and delays at the sysplex level and shows which address spaces serving a service class are being delayed.

CMF MONITOR Online provides you with these sample screen definitions to help you form ideas for creating your own screen definitions and to provide a handy starting point from which you might begin using hyperlinks to explore system performance.

## Example of Using Screen Definitions

Look at how you might use screen definitions.

Suppose you find that you frequently display a particular combination of views and that you always display the views in the same windows, as shown in Figure 3-26.

**Figure 3-26 Sample Window Configuration**

```

10JUN2003 06:53:14 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 3 ALT WIN ==>
W1 -ARD-----SYSB-----*-----10JUN2003--06:52:37---CMF-----70---
Jobname Dev FF Priv LSQA LSQA X SRM TCB CPU EXCP Swap LPA CSA NVI V&H
----- Conn Bel FF CSF ESF M Abs Time Time Rate Rate Rt Rt Rt Rt
*MASTER* 60.89 11 4 77 24 42.4 42 96 0.0
PCAUTH 1 2 22 3 X 0.0 0
RASP X 1.2 3
W2 -ASD-----SYSB-----*-----10JUN2003--06:52:58---CMF-----70---
Jobname SrvClass P CL R DP Curr Curr CS Tar X Pin ES TX Swap WSM
----- P -- LS PR CSF ESF TAR WSS M Rt RT SC RV RV
*MASTER* SYSTEM 1 NS FF 116 283 12.5
PCAUTH STCNRM 1 NS F5 28 18 X
RASP SYSTEM 1 NS FD 73 52 X
>W3 =ASRM=====SYSB=====*=====10JUN2003==06:53:13====CMF=====70====
Jobname SrvClass P Trans Trans TX TX TX TX TX Ses
----- P Active Cur Res CT SC CPU MSO IOC SRB Tota
*MASTER* SYSTEM 1 06:56:00 06:56:00 458.86 0.05 4.81 596.51 1060
PCAUTH STCNRM 1 06:56:00 06:56:00 0.08 0.
RASP SYSTEM 1 05:56:00 06:56:00 0.39

```

The screen is divided into three windows, each containing information on a different performance aspect: window 1 contains the ARD view, which shows resource utilization in real time; window 2 contains ASD, which displays current state information for address spaces; and window 3 shows ASRM, which displays the consumption of resources by address spaces.

Without the ability to create screen definitions, each time you required this information you would have to explicitly enter the commands to display each view and direct the output to one of the three windows—a rather tedious process, especially if you perform it often.

If you create a screen definition, however—perhaps under a name such as **UTLRES**—from then on you can simply type **SCReen UTLRES** to display the **ARD**, **ASD**, and **ASRM** views in the exact same configuration shown in Figure 3-26.

As you become more familiar with CMF MONITOR Online, you undoubtedly will find many uses for screen definitions.

## Scenarios

Each scenario in this section opens with a hypothetical performance problem, and then moves through a succession of views until the source of the problem is pinpointed.

Note that these scenarios illustrate only the most common path through CMF MONITOR Online. Depending on your level of expertise, you may choose a different, more sophisticated problem-solving methodology.

### Scenario 1: Why Did NITEBAT Finish So Late?

The job NITEBAT finished well past its scheduled completion time last night. As a result, activity in several areas of the company has been delayed. It is your job to figure out why this happened and, more importantly, to prevent it from happening again.

NITEBAT was supposed to finish at 1:20 am this morning. Your first step, then, is to look at the system as it existed at 1:20 am and begin gathering clues. To do so, you issue the **TIME** command for window 1:

**TIME 10JUN2003 01:20:00**

Until you specify otherwise, all views displayed in window 1 automatically retrieve data from the Historical Database for the interval between 1:15 and 1:30 am (the interval containing 1:20).

You know for certain that NITEBAT experienced considerable delay last night. To find out if other workloads were delayed, type **WDELAY** in the **COMMAND** field. Your screen now looks like this:

**Figure 3-27 WDELAY View**

```

10JUN2003 07:56:56 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
H1 =WDELAY=====SYSB=====10JUN2003==01:30:01====CMF=====47
C Workload Typ #AS      Total Delay%    %Dly %Dly %Dly %Dly %Dly %Dly
  ----- - - - - - 0.....50...100 CPU Dev Stor SRM ENQ HSM
  ALLBAT  BAT  4  83.01 *****
  PGRP0001 PGR  2  22.83 ***
  PGRP0106 PGR  2  16.39 **
  PGRP0220 PGR  3   6.85 *
  PGRP0000 PGR  8   6.26 *
  ALLWKLDS CMP 151  3.08
  PGRP0240 PGR  6   2.31
  PGRP0016 PGR  4   2.01
  PGRP0344 PGR  1   1.94
  ALLSTC  STC  48  1.71
  PGRP0307 PGR  1   1.67
  PGRP0233 PGR  1   1.56
  PGRP0239 PGR  4   1.39
  PGRP0342 PGR  2   1.25
  PGRP0010 PGR  9   1.23
  PGRP0015 PGR  3   1.11
  PGRP0221 PGR  6   1.06
  
```

Scanning the Total Delay column, you discover that none of the workloads was as critically delayed as ALLBAT, the workload containing NITEBAT. ALLBAT spent 83% of the interval waiting for one or more resources. Of the total delay, 75% was due to Enqueue contention. How much of this delay was experienced by NITEBAT in particular? Were other jobs in ALLBAT affected by Enqueue delay as well?

To answer these questions, you could type **JDELAY** in the **COMMAND** field—or you could rely on the CMF MONITOR Online predefined hyperlinks to anticipate your information needs. You decide to take the easier route; positioning your cursor in the row containing ALLBAT and the column containing the %DLY ENQ field, you press Enter to hyperlink to JDELAY, as shown in Figure 3-28.

**Figure 3-28 JDELAY View**

```

10JUN2003 07:57:55 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> _
CURR WIN ==> 1          ALT WIN ==>
H1 =JDELAY=====SYSB=====10JUN2003==01:30:01====CMF=====4
C Jobname T Dmn Pg      Total Delay %    %Dly %Dly %Dly %Dly %Dly %Dly
  ----- - - - - - 0.....50...100 CPU DEV Stor ENQ SRM HSM
  NITEBAT  B  11  111 100.00 *****
  LGS11Q1  B  11  111  45.42 *****
  DDBBKUP  B  13  106  39.32 *****
  LGS6CPRS B  13  111  26.09 *****
  
```

JDELAY breaks down the ALLBAT workload into its individual jobs and reports on the delays experienced by each. As you can see, NITEBAT was delayed the longest of all jobs in ALLBAT—a total delay of 100%, and all of it due to Enqueue contention. The next logical step is to identify the Enqueue resource causing the delay. As soon as you identify the resource, you can find out why NITEBAT spent so much time contending for it.

On the line pertaining to NITEBAT, you move your cursor to the %DLY ENQ field and press Enter. CMF MONITOR Online takes you to the JDENQ view, shown in Figure 3-29.

**Figure 3-29 JDENQ View**

```

10JUN2003 07:59:12 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> _ SCROLL ==> CSR
CURR WIN ==> 1 ALT WIN ==>
H1 =JDENQ=====SYSB=====*=====10JUN2003==01:30:01====CMF=====4
Waiting %Dly MajorQue MinorQueue Owning Owner Enqueue Enqueue
- Job----- Enq Name----- Name----- Job----- Sysid Scope-- Start---
SYSB 1.22 SYSZTIOT = \ SYSB SYSB System 01:10:11
MIM 3.26 SYSDSN LGS1.CNTL LGS11 SYSB System 01:23:54
LGS11Q1 3.26 SYSDSN LGS1.CNTL LGS11 SYSB System 01:23:54
NITEBAT 100.0 SYSDSN SYS.MCS.MCS DDBBKUP SYSB System 01:01:23

```

The `Waiting Job` column tells you that NITEBAT is waiting for the logical enqueue resource identified by the major name SYSDSN, indicating that the resource is a data set, and minor name SYS.MCS.MCS, the name of the data set itself. And as you can see from the `Owning Job` column, a job called DDBBKUP currently owns the resource.

You need to find out more about this job; to do so, you position your cursor under `Minor name` and press Enter to display the JDENQ JUENQ alternate form, shown in Figure 3-30.

**Figure 3-30 JDENQ JUENQ Alternate Form**

```

10JUN2003 01:45:00 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
H1 =JDENQ=====JUENQ=====SYSB=====*=====10JUN2003==01:45:01====CMF=====1
C Owning %Use Ownr Major Minor RName ENQ Waiting Waitr ENQ ENQ
- Job----- ENQ Has- QName----- Status Job----- Sysid Scope- Start
DDBBKUP 97.2 Excl SYSDSN SYS.MCS.MCS Active NITEBAT SYSB System 01:01

```

There is the problem. DDBBKUP has been assigned exclusive (EXCL) use of this Enqueue resource, holding it for 97% of the 1:30 to 1:45 am interval. All other jobs, including NITEBAT, are restricted from this resource until DDBBKUP completes execution.

Now that you know what caused last night's delay, you are in a good position to ensure it does not happen again. One solution is to simply reschedule DDBBKUP so that it runs well after NITEBAT has completed—although your site might prefer an alternative method.

## Scenario 2: What Was the Cause of a Paging Problem?

You remember seeing a paging problem earlier in the day, but you did not have the time to locate its source. Now that you do have the time, you cannot remember exactly when the problem occurred.

Using CMF MONITOR Online, you can find the time the problem occurred by using the SYSOVER view. Type **SYSOVER** in the **COMMAND** field to look for the interval that had a high paging rate.

**Figure 3-31 SYSOVER View**

```
10JUN2003 18:22:11 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1          ALT WIN ==>
W1 =SYSOVER=====SYSB=====10JUN2003==18:22:11====CMF=====
In Date      Time      CPU Chan Dasd Page PgDs LCU AvIn Dm Pg Swp Job  AFC Dsd
Nm ----- %Bsy %Bsy %Bsy /Sec %Use Qln Q %S %S /Mn /Mn Qln
74 10JUN2003 18:21:58 50.4 35.7 42.3 8.0 51.8 0.0 65.5 20 90 308 2 255 0.1
73 10JUN2003 18:15:02 71.7 37.3 48.3 2.0 51.8 0.1 67.7 46 89 221 1 155 0.1
72 10JUN2003 18:00:01 52.0 27.5 23.6 1.9 51.8 0.1 64.9 46 80 160 1 232 0.1
71 10JUN2003 17:45:01 38.1 18.3 23.8 9.8 51.8 0.0 61.7 31 72 175 1 338 0.0
70 10JUN2003 17:30:01 56.4 26.5 19.1 54.8 51.8 0.0 62.2 61 81 184 3 778 0.0
69 10JUN2003 17:15:01 48.5 44.5 76.8 4.2 51.8 0.0 66.0 55 92 147 4 509 2.4
68 10JUN2003 17:00:01 56.0 16.8 12.8 7.5 51.8 0.0 61.3 58 92 141 1 305 0.1
67 10JUN2003 16:45:01 53.8 12.8 11.8 0.3 51.8 0.0 61.1 61 62 161 1 177 0.0
66 10JUN2003 16:30:01 53.5 12.0 16.3 4.7 51.8 0.0 61.5 63 65 128 1 315 0.0
65 10JUN2003 16:15:01 47.8 14.0 12.4 0.2 51.8 1.0 60.7 70 70 101 2 267 0.1
64 10JUN2003 16:00:01 49.3 11.4 11.5 8.8 51.8 0.0 60.4 72 73 93 0 605 0.0
63 10JUN2003 15:45:01 50.1 20.0 33.0 0.0 51.8 0.0 59.0 66 84 67 1 216 0.0
62 10JUN2003 15:30:01 47.2 12.1 11.4 0.0 51.8 0.0 58.4 68 68 58 1 281 0.0
61 10JUN2003 15:15:01 57.7 18.7 17.5 0.8 51.8 0.0 56.7 60 66 42 1 347 0.1
60 10JUN2003 15:00:01 8.4 2.7 9.8 51.8 0.0 51.9 50 33 24 0 374 0.0
59 10JUN2003 14:45:01 7.4 2.7 10.1 0.0 51.8 0.0 48.7 64 46 23 409 0.0
58 10JUN2003 14:30:01 5.5 2.0 10.1 0.0 51.8 0.0 48.4 86 61 8 0 411 0.0
57 10JUN2003 14:15:00 5.7 2.1 9.7 0.0 51.8 0.0 48.5 88 59 17 488 0.0
56 10JUN2003 14:00:01 6.5 7.4 9.9 51.8 0.5 48.6 68 81 11 0 686 0.0
55 10JUN2003 13:45:01 8.2 38.1 9.9 0.0 51.8 0.5 49.4 49 41 12 484 0.0
```

As you scan the Page/Sec column, you see that the paging rate was highest during interval 70, which ended at 5:30 pm. To find out more about about paging activity during that interval, place the cursor in the Page/Sec field for that interval, and then press Enter. By doing this, you use a combination of an existing hyperlink and the TIME command. CMF MONITOR Online displays the WSTORD view with historical data.



```

10JUN2003 18:29:23 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==>
CURR WIN ==> 1 ALT WIN ==>
H1 =WSTORD=====SYSB=====10JUN2003==17:30:01===CMF=====55
C Workload Typ #AS %Dly %Dly %Dly %Dly %Dly %Dly %Dly %Dly %Dly %Dly Avg
- - - - - Stor PLPA Comm Local --VIO SwpPD SwpSD FramS Frame
CLASSK SCL 4 2.0 0.0 0.0 2.0 0.0 231
BATCOMP CMP 4 1.4 0.0 0.0 1.4 0.0 255
PGRP0005 PGR 1 1.4 0.0 1.3 0.0 105
PGRP0340 PGR 4 1.1 0.1 0.8 0.2 604
PGRP0003 PGR 2 0.7 0.0 0.0 0.7 0.0 655
ALLBAT BAT 6 0.9 0.0 0.0 0.9 0.0 626
NAMBAT BAT 6 0.1 0.0 0.0 0.1 0.0 626
ALLWKLDS CMP 184 0.1 0.0 0.0 0.0 0.0 125
PGRP0001 PGR 19 0.0 0.0 0.0 0.0 0.0 172
ALLSTC STC 88 0.0 0.0 0.0 0.0 0.0 136
MAR TSO 88 0.0 0.0 0.0 0.0 0.0 136
PGRP0030 PGR 19 0.0 0.0 0.0 0.0 0.0 236
PGRP0002 PGR 88 0.0 0.0 0.0 0.0 0.0 69
ALLTSO TSO 90 0.0 0.0 0.0 0.0 0.0 73
ATSPGN2 CMP 38 0.0 0.0 0.0 0.0 77
APPLTSO TSO 2 49
BBMTSO TSO
CLASSF SCL 332

```

To set up the hyperlink, first enter view customization by typing **CUST** in the **COMMAND** field. View customization for **WSTORD** is shown in Figure 3-33.

```

----- VIEW CUSTOMIZATION - WSTORD -----
OPTION ==> SCROLL ==> PAGE
Options: (that require column selection)      Other options:
F - Format      M - Move      I - Include      G - Graph      S - Save view
O - Order      R - Repeat     X - Exclude     P - Parameters E - Show excluded
L - Filter     T - Threshold  H - Hyperlink Z - Summarize K - Show template
-----
Some options ask you to select a target column. To do so, either type the
option with the column id on the OPTION line (as in: f e to format column E),
or type just the option, move the cursor to the target column and press ENTER.
Your changes are implemented every time you press ENTER. You may save the
modified view definition with any name you choose. Enter END (PF3) to exit.
-----
  A      F      G      H      I      J      K      L      M      N      O      P
C Workload Typ #AS %Dly %Dly %Dly %Dly %Dly %Dly %Dly %Dly %Dly Avg
- - - - - --- --- Stor PLPA Comm Local --VIO SwpPPD SwpPSD FramS Frame
CLASSK   SCL   4   2.0   0.3   0.3   1.3               0.0   231
BATCOMP  CMP   4   1.4   0.2   0.2   1.0               0.0   255
PGRP0005 PGR   1   1.4               0.1               1.3   105

```

```
----- VIEW CUSTOMIZATION - WSTORD -----
OPTION ==> H K                                SCROLL ==> PAGE
```

Since you want to hyperlink to the PGSP view whenever the value in the %Dly Local field is greater than 0, fill in the Condition and Command fields as shown in Figure 3-34.

**Figure 3-34 Setting Hyperlink Conditions**

----- VIEW CUSTOMIZATION - WSTORD -----																								
OPTION ==> H										SCROLL ==> PAGE														
Options: (that require column selection)										Other options:														
F - Format	M - Move	I - Include								G - Graph	S - Save view													
O - Order	R - Repeat	X - Exclude								P - Parameters	E - Show excluded													
L - Filter	T - Threshold	H - Hyperlink								Z - Summarize	K - Show template													
< Hyperlink - column: F										element: WKILPWP >-----														
Condition:										Command: (with parameters)														
K > 0_____										PGSPP_____														
_____																								
_____																								
_____																								
_____																								
-----																								
A	F	G	H	I	J	K	L	M	N	O	P													
C Workload	Typ	#AS	%Dly	%Dly	%Dly	%Dly	%Dly	%Dly	%Dly	%Dly	Avg													
-	-	-	Stor	PLPA	Comn	Local	--VIO	SwpPD	SwpSD	FramS	Frame													
CLASSK	SCL	4	2.0	0.3	0.3	1.3				0.0	231													
BATCOMP	CMP	4	1.4	0.2	0.2	1.0				0.0	255													
PGRP0005	PGR	1	1.4		0.1					1.3	105													

After you set the conditions, save your changes without renaming the view so that you will always be able to hyperlink directly from WSTORDS to PGSP.

Exit from view customization by pressing PF3. Hyperlink to the PGSP view by placing the cursor anywhere in the %Dly Local column of the WSTORDS view and pressing Enter. CMF MONITOR Online now displays the PGSP view, as shown in Figure 3-35.

**Figure 3-35 PGSP View**

10JUN2003 19:13:26 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----														
COMMAND ==>										SCROLL ==> PAGE				
CURR WIN ==> 1					ALT WIN ==>									
H1 =PGSP=====SYSB=====10JUN2003==17:30:01====CMF=====6														
C DS PGDS	Volser	Dev	Sts	%Slt	Page	I/O	Rq	AvgPg	V	%Busy	Data	Set	Name	
-	Type-	Num	---	Used	XfrTm	Rate	/	I/O	-	-----				
0	PLPA	PAGEB2	B14	OK	51.81		0.08	1.03	N	0.57	PAGE.VPAGEB2.PLPA			
1	COMN	PAGEB2	B14	OK	17.48		0.18	1.51	N	0.57	PAGE.VPAGEB2.COMMON			
3	LOCL	PAGEB2	B14	OK	41.66	9.60	2.50	11.16	Y	11.49	PAGE.VPAGEB2.LOCAL1			
4	LOCL	PAGEB1	B10	OK	72.56	19.49	21.45	5.14	N	43.45	PAGE.VPAGEB1.LOCAL1			
5	LOCL	PAGEB3	B17	OK	43.10	11.75	11.36	5.15	N	32.30	PAGE.VPAGEB3.LOCAL1			
6	LOCL	PAGEB4	B21	OK	52.21	12.43	18.62	4.47	N	39.45	PAGE.VPAGEB4.LOCAL1			

Notice that data set number 4 LOCL has the highest value in the %Slt Used field, indicating that it had the highest percentage of page slots in use during that interval.

You now have two alternatives:

- To find out more about that particular page data set, you can hyperlink from the DS field to the PGDINFO view.
- To find out about the performance of the device for that page data set, you can hyperlink from the Dev Num field to the DEVINFO view.

In this case, you probably want to find out what percentage of the device was in use at the time, so move the cursor to the Dev Num field and press Enter to hyperlink to DEVINFO, as shown in Figure 3-36.

**Figure 3-36 DEVINFO View**

```

10JUN2003 19:13:26 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
H1 =DEVINFO=====SYSB=====10JUN2003==17:30:01====CMF=====1
Volser..... PAGEB1 % Allocated.... 100.00 Avg Serv Time..197.28
Device Number.. B10 % Utilized..... 4.20 Avg IOSQ Time..124.94
Type..... 3380 % Active..... 4.27 Avg Act Time... 73.34
LCU Number.... 043 % Connected.... 1.35 Avg Conn Time.. 30.43
Status..... RDY % Disconn..... 2.85 Avg Dsc Time... 42.53
Mount Status... PRV % Pending..... 0.07 Avg Pnd Time... 0.37
% Mount Pend... % Req Queued... Avg DPB Delay..
SSCH/Sec..... 1.45 % Dev Queued... Avg CUB Delay..
SSCH/Sec....(R) 3.53 % Q+CPU Wait... Avg DvB Delay..
Total SSCH.... 1284 % Efficiency... 100.00 % Reserved....
% In Use..... 4.68 Avg Q Depth.... % Resv Shr....
% Delaying.... Max Q Depth.... % Error Rec....
Curr DS open...
Avg DS open....

```

In the DEVINFO view, you can hyperlink from the % In Use field to the JUDEV view to find out who was using this particular device during the interval with the paging problem.

To hyperlink, put the cursor on the % In Use field and press Enter. CMF MONITOR Online now displays the JUDEV view.

**Figure 3-37 JUDEV View**

```

10JUN2003 19:13:26 ----- MAINVIEW WINDOW INTERFACE(RV.R.MM)CMF -----
COMMAND ==> SCROLL ==> PAGE
CURR WIN ==> 1 ALT WIN ==>
H1=JUDEV=====SYSB=====10JUN2003==17:30:01====CMF=====2
C Jobname T SrvClass %Use %Use Dev Volser Type Mnt Resp Act. %Req
- - - - - ThisJob AllJobs Num - - - - - Sta Time Rate Qued
PRODUPD B BATNRM 24.89 4.14 227 PAGD27 3380 PRV 35.3 0.08 0.2
*MASTER* S SYSTEM 4.13 4.14 227 PAGD27 3380 PRV 14.5 2.78 0.2

```

Now you see the source of the paging problem clearly: A batch job was using this device, which means that someone allocated a data set on a page-in pack. Since this will definitely degrade paging response time, you will need to ask the responsible party to deallocate that data set, and then make sure that no other data sets are allocated on page-in packs.



---

## Chapter 4      **Generating and Managing Batch Reports**

MAINVIEW for OS/390 can obtain historical performance reports through the submission of batch jobs. An ISPF dialog panel will assist you in generating the JCL to produce MAINVIEW batch reports of your historical data.

This chapter contains the information you need to

- Set up the MAINVIEW batch environment
- Generate the MAINVIEW batch report JCL
- Manage the MAINVIEW batch report JCL members

You may want to submit a job each day to report on some of the key elements of performance for the previous day. The TIME command has several parameters that enable you to specify timeframes relative to today. This allows you submit the same job on a periodic basis without having to change the JCL (i.e., TIME yday 15:00 4h produces a report for every four hours starting at 3pm yesterday).

In this feature, you can enter the command in an ISPF dialog panel much as you would if you were in an online session. The tabular or detail report is directed to a data set or SYSOUT. The report output is nearly the same format as the online tabular and detailed displays; however, it will display all rows from the query and show as many columns as your data set allows.

### **Initiating Report JCL Generation**

The ISPF dialog panel helps generate the OS/390 JCL for reports you wish to run periodically, and keeps track of previously generated report JCL members. Each report can have up to 16 queries.

To set up OS/390 JCL reports, in the OS/390 Performance and Control panel, select **MVBATCH**.

The MAINVIEW Batch Reports panel is displayed, as shown in [Figure 4-1](#).

**Figure 4-1 MAINVIEW Batch Reports Panel**

---

----- MAINVIEW Batch Reports -----		
Option	==>	
0	Setup	Set up MAINVIEW Batch Environment
1	Generate	Generate MAINVIEW Batch Reports JCL
2	Edit/Submit	Edit/Submit existing MAINVIEW Batch Reports JCL
3	Browse	Browse MAINVIEW Reports
X	Exit	Terminate

---

The MAINVIEW Batch Reports panel provides the following options:

Setup	Displays the MAINVIEW Batch Environment Setup panel where job and report information are recorded. This information is unlikely to change much.
Generate	Displays the Generate MAINVIEW Batch Reports JCL panel where information specific to each report is recorded, saved, and submitted to generate the JCL.
Edit/Submit	Displays the MAINVIEW Batch JCL Member List panel where JCL members are stored. The stored members can be browsed, deleted, edited, and resubmitted.
Browse	Displays the MAINVIEW Batch Reports list where batch reports are stored. The list shows that the report is either stored in a sequential data set or in a member of a partitioned data set (PDS). The stored reports can be browsed.

## Setting Up the MAINVIEW Batch Environment

You will want to set up the MAINVIEW batch environment for your reports. Once you select the setup information, little change will be made from one report to another.

To set up the MAINVIEW Batch JCL:

**Step 1** In the MAINVIEW Batch Reports panel, on the **Option** line, type **0**.

The MAINVIEW Batch Environment Setup panel is displayed, as shown in [Figure 4-2](#).

**Figure 4-2 MAINVIEW Batch Environment Setup Panel**

```

----- MAINVIEW Batch Environment Setup -----
Command ==>

Job Statement Information:
==> //USERID   JOB   (ACCOUNT),'NAME'
==> /*
==> /*
==> /*
==> /*

Report Title ==>

MAINVIEW Clist Library..... ==> hilevel.BBCLIB
MAINVIEW Clist Name..... ==> MAINVIEW
MAINVIEW BBLINK Library.... ==> hilevel.BBLINK
CAS SSID..... ==> BBCS

Library to save JCL..... ==> 'userid.export.cntl'
Temporary Workfile Unit.... ==> VIO

Press END to save changes and return to the previous panel
Type CANCEL to return to the previous panel without saving changes

```

This panel provides the options for selecting the job and report information you want for the JCL to generate your report. To do this:

- Step 2** Under **Job Statement Information**, type a job card that conforms to your installation standards.
- Step 3** In the **Report Title** field, type the title you want printed at the top of your reports.
- Step 4** In the **MAINVIEW Clist Library** field, type the name of the library containing the MAINVIEW CLIST.
- Step 5** In the **MAINVIEW Clist Name** field, type the name of the MAINVIEW CLIST.
- Step 6** In the **MAINVIEW BBLINK Library** field, type the name of the MAINVIEW BBLINK library.
- Step 7** In the **CAS SSID** field, type the four-character CAS Subsystem ID.
- Step 8** In the **Library to save JCL** field, type an ISPF library name for the saved JCL.
- Step 9** In the **Temporary Workfile Unit** field, type a unit name for the temporary data sets.
- Step 10** Press End to save your changes and return to the MAINVIEW Batch Environment Setup panel.

To return to the MAINVIEW Batch Environment Setup panel without making or saving changes, on the **COMMAND** line, type **CANCEL**.

## Generating MAINVIEW Batch Reports JCL

Before generating your JCL report, some specific information is necessary.

To add the necessary information:

- Step 1** In the MAINVIEW Batch Reports panel, on the **Option** line, type **1** and the Generate MAINVIEW Batch Reports JCL panel is displayed, as shown in [Figure 4-3](#).

**Figure 4-3** Generate MAINVIEW Batch Reports JCL Panel

```
----- Generate MAINVIEW Batch Reports JCL -----
Command ==>

JCL Member name      ==> JOBNAME  Replace (Y/N)?  YES
JCL Member Description ==> Description                                <==
Report format:       ==> ASIS      (ASIS or CSV)
Lines/Page:         ==> 60        (ASIS format only)

Sysout Class ==>
Or
Output data set ==> EXPORT.LST
                   Volume ==>      (If data set uncatalogued)

Enter Queries on the lines below.  Each line will write a separate
report to the output data set.

Press END to save changes and generate the JCL
Type CANCEL to return to the previous panel without saving changes

                                     More:      +
==> TIME LASTWEEKDAY 23:59 1D;JSRM
==> TIME *-7;JCPU
==> JOVER
==> SYSOVER
==>
```

The Generate MAINVIEW Batch Reports JCL panel displays fields for recording the information and the queries necessary for your JCL.

- Step 2** Type the input information, output information, and queries you need for your report.

The fields are:

<b>JCL Member name</b>	Name for this JCL member. Each JCL report can be given a member name and a description.
<b>JCL Member Description</b>	Description of the report. This is optional.



<b>Report format</b>	ASIS or CSV format. Enter <b>ASIS</b> to print reports that look like the screens. Enter <b>CSV</b> for comma-separated fields to download the record to a spreadsheet program.
<b>Lines/Page</b>	For ASIS reports, the heading will be printed on each page. For a continuous report with the heading on the first page only, enter 0.
<b>Sysout Class</b>	For entering report SYSOUT class.
<b>Output data set</b>	For entering a sequential data set or partitioned data set with a member name for report output. If the data set is not catalogued, supply the volser. Entering a SYSOUT class overrides the data set specification.
<b>Queries</b>	<p>Kinds of data you want to see. Enter queries exactly as you would on the <b>COMMAND</b> line in an online session. For example:</p> <ul style="list-style-type: none"><li>• <b>JOVER</b> will print the JOVER view.</li><li>• <b>JOVER;FORM JSRM</b> prints JOVER with the JSRM FORM.</li><li>• <b>JOVER</b> on the first line followed by <b>FORM JSRM</b> on the second line prints the JOVER report first followed by the JOVER report under the JSRM FORM.</li></ul> <p>To establish a timeframe and duration different from the current time, combine that different timeframe and duration with the first command.</p> <p><b>TIME LASTWEEKDAY 23:59 1D;JOVER</b></p> <p>Note: This time period will remain in effect until it is changed by a subsequent query.</p> <p>Through the use of one-per-line commands, additional reports of data can be created from the same timeframe.</p>

**Note:** The generated JCL executes the MAINVIEW CLIST. The CAS and PAS must be started before the JCL is executed.

**Step 3** Press the End key to save changes and generate the JCL.

The JCL will be presented in an edit session. You are not expected to have the need to make changes.

**Step 4** To submit the job, on the **COMMAND** line, type **SUB**.

**Step 5** Press Enter.

To cancel and return to the MAINVIEW Batch Reports panel without saving changes, type **CANCEL**.

## Managing MAINVIEW Batch Report JCL Members

The Edit/Submit option in the MAINVIEW Batch Reports panel opens the JCL member list of generated records. This list provides options to browse, delete, edit, and submit the JCL.

To display the MAINVIEW Batch JCL Member List, on the MAINVIEW Batch Reports panel **Option** line, type 2.

The MAINVIEW Batch JCL Member List panel is displayed with a table of stored JCL members, as shown in [Figure 4-4](#).

**Figure 4-4** MAINVIEW Batch JCL Member List Panel

---

```

----- MAINVIEW Batch JCL Member List ----- Row 1 to 6 of 6
Command ==>                               Scroll ==> PAGE

Line Commands: B - Browse JCL  DEL - Delete JCL  E - Edit JCL
                SUB - Submit JCL

Press END to return to main menu

```

LC	Member	Description	Time	Date
	WCPU	Weekly CPU Report	14:01:42	2003/03/21
	DCPU	Daily CPU Report	06:48:14	2003/03/21
	WDEVICE	Weekly Device Report	09:06:46	2003/03/22
	DDEVICE	Daily Device Report	08:45:39	2003/03/18

---

The table is two panels wide. The directional arrows (>>> or <<<), above the list and on the right, indicate that additional JCL member information is available. Use the right scroll key to see information on the right and use the left scroll key to return to the information on the left.

To edit, browse, delete, and submit the JCL in this member list, type

- E to Edit a member
- B to Browse the JCL
- DEL to Delete a member
- SUB to Submit the job

## Batch Report Output Members

The Browse option in the MAINVIEW Batch Reports panel opens the MAINVIEW View Online Reports panel. This panel provides a list of generated online batch members, which can be browsed.

To display the MAINVIEW View Online Reports panel, on the MAINVIEW Batch Reports panel **Option** line, type 3.

The MAINVIEW View Online Reports panel is displayed, as shown in Figure 4-5.

**Figure 4-5 MAINVIEW View Online Reports Panel**

```
----- MAINVIEW View Online Reports ----- Row 1 of 20
Command ==> Scroll ==> PAGE

S Select member to view report online

Press END to return to MAINVIEW Batch Reports Menu

LC Member Reports Data Set UserID
-----
BPA0583A BMVDID.BPA0583.JCL(BPA0583L) BMVDID3
BPA0583B BMVDID.BPA0583.JCL(BPA0583M) BMVDID3
CACHE BMVJOJ.TESTPO.LST(CACHE) BMVJOJ2
COUPLING BMVJOJ.TESTPO.LST(COUPLING) BMVJOJ2
DEVICES BBSECH8.JCL.CNTL(DEVZ) BBSECH8
JDELAYS BMVJOJ.TESTPO.LST(DELAYS) BMVJOJ2
JONJMV BMVJOJ.ZYYXXX.LST(JONJMV) BMVJOJ2
JOVER BMVJOJ.COOL BMVJOJ2
LOST BMVJOJ.TESTPO.LST(A9) BMVJOJ2
MVBATCH SYSOUT(*) BBGST09
MVBATCH1 BMVJOJ.A3DLIB(MVBATCH1) BMVJOJ2
S MVBATCH2 BSLARD.X BSLARD1
MYBATCH SYSOUT(R) BMVJOJ2
TERRY1 SYSOUT(A) BBGST06
TESTJN BMVJOJ.TESTPO.LST(TESTJ2) BBGST12
TEST2 BBGST05.PRNT.TEST(DATA2) BBGST05
TST1 BMVJOJ.TDSTPO.LST BMVJOJ2
WAYNE1 BBGST10.JUSE.EXPORT BBGST10
WORK BMVJOJ.TESTPO.LST(WDELAYS) BMVJOJ2
XTSTJMV BMVJOJ.TESTPO.LST(XTSTJMV) BMVJOJ2
```

To browse a report, in the **LC** column on the left side of the report member, type S.

In Figure 4-5, the member, MVBATCH2 in the BSLARD.X reports data set is selected.

The MAINVIEW Batch Report list panel for BSLARD.X is displayed, as shown in Figure 4-6.

**Figure 4-6**      **MAINVIEW Batch Report List Panel, BSLARD.X**

```

BROWSE      BSLARD.X                               Line 00000000 Col 001 080
Command ==>                                         Scroll ==> PAGE
***** Top of Data *****
1
CMD> JOVER

10JUN2003  14:15:25      MAINVIEW Batch Report      REPORT PAGE  1
JOVER=====DXTSTJ==*=====10JUN2003==14:15:24====MVMVS=====165

Jobname  T  SrvClass  Total  Total  %Dly  %Dly  %CPU  EXCP  DmdP  SwpP  Avg
-----  -  -----  Dly%  Use%  Idle  Unknown  Util  /Sec  /Sec  /Sec  Frame  /
DC$BBIRR S  STCNRM   100.0                0.0                0.3                354
AAOSFS41 S  STCNRM   100.0                0.1                434
AAOMH41  S  STCNRM   100.0                0.1                448
OLTE     S  STCNRM   100.0                0.5                2022  1
CATALOG  S  SYSTEM   66.67  33.33          0.3                422
OLTGMA   S  STCNRM   50.00          50.00          0.1                1442
AAORMB5  S  STCNRM   50.00          50.00          0.1                910
BSLARD1Z B  BATNRM   50.00          50.00          5.6   68.7                1265  9
SMS      S  STCNRM   50.00          50.00          0.0   0.5   0.1                133

```

---

## Chapter 5     Graphing Your Data

Most MAINVIEW for OS/390 and CMF MONITOR Online views come with graphs that depict the data in pictorial form. You can change these graphs, or create graphs of your own, using a component called GraphManager.

To save a chart definition in a picture file, the BBTLIB data set must be allocated to your user ID. At most sites, the data set is allocated automatically when you access MAINVIEW. If the BBTLIB data set is not allocated to your user ID, see the *MAINVIEW Administration Guide* or your system administrator for information about how to allocate the data set.

### Displaying a Chart

To display a chart:

- Step 1**     Display the view for which you want to see the chart.
- Step 2**     Type **GRaph** in the **COMMAND** field.

The view is replaced by a full-screen chart of the view data.

The MAINVIEW window interface automatically accesses high-resolution charts or low-resolution charts, depending upon your terminal type. High-resolution terminals require the use of GDDM and include the 3279, 3179G, 3290, and 3274G terminals. Low-resolution terminals, which include the 3277, 3278, 3178, and so on, use ISPF's dialog management services instead of GDDM. These charts use characters such as asterisks and dashes to represent graphics.

## Customizing Charts

Suppose you want to customize the graph that was originally distributed with a particular view—in this case, the view JFLOW. You want to save the graph with JFLOW so that it is displayed every time you issue the GRAPH command from JFLOW. Although there are several ways to accomplish this, the recommended procedure is

- Step 1** Display JFLOW.
- Step 2** Type **CUST** in the **COMMAND** field to enter view customization.
- Step 3** Select Option **G** - Graph.

The dynamic customization window for the Graph option looks like this:

```
-----< Graph - Specify columns for graphing >-----
X=> A      Chart Type => $MBARH  Library => D      (D-dist, S-site, Userid)
1=> I      5=>      Title  => Interval job workflow and delay
2=> K      6=>      X-axis => Jobname              Select X-axis and Y-axis columns
3=>        7=>      Y-axis => Percentage           and enter optional titles.
4=>        8=>      Preview chart => N (Y/N)
-----
```

- Step 4** If you want to make one or more of the changes described in the following table, follow the associated instructions:

**Table 5-1**

To change	Do this
Element used for X-axis	Type appropriate column letter in <b>X</b> field.
Element(s) used for Y-axis	Type appropriate column letter in fields <b>1</b> through <b>8</b> .
Title of the graph	Type new title in <b>Title</b> field.
X-axis label	Type new label in <b>X-axis</b> field.
Y-axis label	Type new label in <b>Y-axis</b> field.
Chart type	If you know the name of the <i>chart definition</i> you want to use, type its name in the <b>Chart Type</b> field. (To see a list of chart definition names and their descriptions, press PF1 and scroll down until the list is visible.) If you do not know the name, continue following the numbered steps.

- Step 5** To test your changes, in the **Preview chart** field, type **Y** and press Enter. Press PF3 (End) to return to view customization.
- Step 6** If you are satisfied with your changes, press PF3 (End) to exit view customization. Be sure to save your modifications by typing **YES** in the **Save changes** field.

If you want to change the chart type, but do not know which type to use, continue with this procedure.

**Step 7** From view customization, in the **Preview** chart, type **Y**, and press Enter to display the graph.

**Step 8** Press PF1 to enter GraphManager and the Chart Selection panel is displayed.

**Note:** For specific information on the fields and options available from this panel, press PF1 (Help).

If you have a high-resolution terminal, the CHART SELECTION panel looks like this:

**Figure 5-1 High-Resolution Chart Selection Panel**

```

----- CHART SELECTION - $MBARH ----- CHART: 1
OPTION ==>                                     HARDCOPY PFKEY ==> 4

      A - List, select, update chart definitions      MULTIPLE CHART ==> N
      B - Display data item selection list            CHART LOCATION ==>
      C - Redefine current chart specifications        1 L.half  2 R.half
      blank - Generate chart                          3 L.top   4 R.top
                                                    5 L.bottom 6 R.bottom

CHART TYPE ==> 6 (Enter one of the chart types listed)
CHART TITLE ==> Interval job workflow and delay      COMMON HEADING ==> N

1 Line graph  4 Overlay surf  7 Stacked bar  10 3D bar  A Annotation only
2 Scatterplot 5 Histogram    8 Overlay bar  11 3D surf  T Tabular display
3 Stacked surf 6 Multiple bar 9 Pie chart      I ICU (GDDM)

Data items currently selected:
X-axis: ASGNAME (not used for pie charts)
Y-axis: ASIWKFL ASIDLYP

```

If you have a low-resolution terminal, the panel looks like this:

**Figure 5-2 Low-Resolution Chart Selection Panel**

```

----- CHART SELECTION - $MBARH -----
OPTION ==>

      A - List, select, update chart definitions      LEGEND POSITION ==> R
      B - Display data item selection list            (B=bottom,T=top,R=right)
      C - Redefine current axis range and labels
      blank - Generate chart

CHART TYPE ==> 3 (Enter one of the chart types listed)
CHART TITLE ==> Interval job workflow and delay

      1 Line graph  2 Scatterplot  3 Stacked bar  4 Overlay bar  5 Pie chart

Data items currently selected:
X-axis: ASGNAME (not used for pie charts)
Y-axis: ASIWKFL ASIDLYP

For hardcopy of a displayed chart, press the ISPF defined PRINT PFK.

```

**Step 9** To choose a new chart type, select Option A from the Chart Selection panel.

The Chart Definition panel is displayed, which contains a list of predefined chart definitions from which to choose.

- Step 10** Type **S** next to the chart definition you want to display. Press Enter twice to see the chart.

Continue selecting and displaying different chart definitions until you find the one you want to use for JFLOW.

If you do not find the one you want, or if you find one but want to make changes to it, go to Step 11.

If you are satisfied with one of the distributed definitions, go to Step 12.

- Step 11** If you do not find the chart type that you want in one of the distributed definitions, or if you want to change one of the distributed versions, you must create a new chart definition. To do so:

11.A Select the distributed definition that is **most similar** to the chart type that you want to use.

11.B Press Enter to return to the Chart Selection panel.

11.C Change the chart type by typing the number corresponding to the chart type that you want in the **Chart Type** field.

If you have a high-resolution terminal, you can now select Option C and make additional changes to your graph.

11.D When you are satisfied with your changes, select Option A from the Chart Specification panel.

11.E Assign a name to your customized chart in the **Chart Definition Name** field.

11.F To save the chart in your sitewide chart library, in the **Chart Library** field, type **S**. To save the chart in your personal chart library, type your user ID in the **Chart Library** field. (You cannot save a customized chart in the distributed library.)

11.G In the **Option** field, type **A** to add (or replace) your chart definition.

- Step 12** Press PF3 (End) until you return to view customization.

Notice how the chart definition you selected is now displayed in the **Chart Type** field. Make any other changes you want in the Graph dynamic window and press Enter.



**Step 13** Press PF3 to save the chart and exit view customization.

The modified chart is now saved with JFLOW and will be displayed every time you enter GRAPh from that view.

## Printing a Chart

Low-resolution graphics are printed using the ISPF PRINT command.

For high-resolution graphics:

**Step 1** Display the chart that you want to print/transfer. Notice the number of the PF key that has been assigned to Hardcopy in the lower right corner of your screen. (If you want to change this PF key definition, press PF1, and then specify the new number in the **Hardcopy PFKey** field on the Chart Selection panel.)

**Step 2** Press the hardcopy PF key.

The GRAPHICS TRANSFER panel is displayed, which looks like this:

**Figure 5-3 Graphics Transfer Panel**

```

----- GRAPHICS TRANSFER -----
OPTION ==>

1 QUEUE - transfer screen image to the GDDM print request queue data set
2 SAVE  - transfer screen image to a permanent picture file (GDF)
3 PLOT  - transfer screen image to an attached plotter
4 PRINT - transfer screen image to an attached printer

Queued request: (option 1)
Printer name    ==> LSPRB32 (VTAM node name or GDDM nickname)
Number of copies ==> 1
Separator page  ==> NO
Page width (cols) ==> 75
Page depth (rows) ==> 60

Picture file: (option 2)
Data set name   ==>
Member name or  ==>
Member prefix   ==> (the next 2-digit sequential number will be
                    appended to this prefix)

Press ENTER to generate picture transfer
Press END KEY to cancel request

```

**Note:** For specific information on the fields and options available from this panel, press PF1 (Help).

Choose the task that you want to perform from the following table and follow the procedure specified:

To do this	Follow this procedure
Transfer a chart to the GDDM print request queue data set.	<ol style="list-style-type: none"> <li>1. Type <b>1</b> (QUEUE) in the <b>Option</b> field.</li> <li>2. Fill in the <b>Queued request:</b> fields on the Graphics Transfer panel.</li> <li>3. Press Enter.</li> </ol>
Transfer the graph to a picture file on auxiliary storage for later display. A <i>picture file</i> is a member of a PDS stored in Graphics Data Format (GDF).	<ol style="list-style-type: none"> <li>1. If you or your site does not already have a graphics PDS, allocate one on auxiliary storage with these attributes:   RECFM=F or FB  LRECL=400</li> <li>2. Type <b>2</b> (SAVE) in the <b>Option</b> field.</li> <li>3. Specify the name of the PDS in the <b>Data Set Name</b> field.</li> <li>4. Specify the member name that you want to use in the <b>Member name</b> field <b>OR</b> a prefix of up to six characters in the <b>Member prefix</b> field.</li> <li>5. Press Enter.</li> </ol> <p><b>About Member Prefixes:</b>  The Member prefix field allows you to logically group a set of related graphs. GraphManager appends a two-digit suffix (01 - 99) to the prefix for each unique graph.  For example, if you specified the prefix TAXES, the first graph is saved as TAXES01, the second as TAXES02, and so on. Then, when you are ready to display all the TAXES graphs, you can use the PICTure command to display the graphs in numerical order.</p>
Transfer the graph to an attached plotter. A plotter can be attached to a 3179G or 3270 PC/G(X).	<ol style="list-style-type: none"> <li>1. In the <b>Option</b> field, type <b>3</b> (PLOT), and press Enter.</li> </ol>
Transfer the graph to a locally attached printer.	<ol style="list-style-type: none"> <li>1. In the <b>Option</b> field, type <b>4</b> (PRINT) , and press Enter.</li> </ol>

---

## Chapter 6 Before Calling Customer Support

When you first start using CMF MONITOR Online, you may encounter some situations that seem a bit confusing, but chances are there is a reasonable explanation. To save yourself some time, check to see if your situation matches any of these descriptions before calling Customer Support:

If this is happening	Turn to page
A view contains job or workload names but all other columns are blank.	6-1
Read failed for view messages appear in a window.	6-2
PF3 does not redisplay views as expected.	6-2
Performance suffers in ASU mode.	6-3
Colors and reverse video do not appear on your graphics terminal.	6-4
ATTN command does not end ASU mode.	6-5
Screen Def Not Found message appears when attempting to enter a MAINVIEW product.	6-5
When displayed as part of a screen definition, views do not contain data.	6-6

Each situation is addressed on the corresponding page number, including a suggested course of action and an explanation of why the problem occurs.

### View Contains Only Job/Workload Names

If a view lists job and workload names but nothing else, try one of the methods described in the following table:

Action	Explanation
Press Enter. The data should appear for the other columns in a few seconds.	If you happen to display a view at the instant a new interval begins, data has not had a chance to accumulate—so there is no data to display.
Display the DCSTAT view and verify that the ADDRSPCE and WORKLOAD data collectors are active. If they are not, re-activate them using the A line command.	If the ADDRSPCE and WORKLOAD data collectors are deactivated at the beginning of an interval, job and workload names are the only data available for display. If you activate ADDRSPCE and WORKLOAD during the interval, data appears for the other columns, but is considered invalid until the start of the next interval.

## 'Read Failed for View' Messages

If you get a message similar to the one shown in Figure 6-1:

**Figure 6-1 Read Failed Error Message for LCUSTRT**

```

10JUN2003 07:08:46 ----- INFORMATION DISPLAY ----- VIEW NOT FOUND
COMMAND ==>                                SCROLL == => PAGE
CURR WIN ==> 1          ALT WIN ==>
W1 =WDELAY=====SYSB=====*=====10JUN2003==07:07:51====CMF=====
BBMXC739E View          LCUSTRT not found

```

- Step 1 Check the messages in the window to see if the view name is misspelled. If it is, type the correct view name in the **COMMAND** field.
- Step 2 If you were executing a hyperlink, type **CUST** and change the hyperlink target to the correct view name.

MAINVIEW looks for views spelled exactly as they are entered. You may have misspelled the view name when you entered it in the **COMMAND** field. If you were trying to execute a hyperlink, the view name may have been misspelled when the hyperlink was established.

## PF3 Does Not Work as Expected

If you use PF3 to redisplay a view and receive unexpected results, consult the following table

Action	Explanation
Check to see if the window contains messages, rather than a view. If it does, press Enter to redisplay the view, and then press PF3.	<p>You can use PF3 to progressively redisplay the last 20 views you displayed. That is, if you display LCUSTAT, then display LCUINFO, you can use PF3 to redisplay LCUSTAT without having to type the view name again. However, PF3 does not redisplay a view if there are messages in the window rather than a view.</p> <p>For example, suppose</p> <ol style="list-style-type: none"> <li>1. You are in LCUSTAT and you execute the LCU Num hyperlink to display LCUINFO.</li> <li>2. You execute the hyperlink that you set up for the Ctrl Unit 1 field to display the LDEV view. Unfortunately, you misspelled LDEV as LVED when you set up the hyperlink, so you get the output shown in Figure 6-2 on page 6-3:</li> </ol>

**Figure 6-2 Example of a Window Displaying a Message**

```

10JUN2003 07:13:53 ----- INFORMATION DISPLAY ----- VIEW NOT FOUND

COMMAND ===>
CURR WIN ===> 1          ALT WIN ===>
>W1 =LCUINFO=====SYSB=====10JUN2003==07:13:33===CMF=====
BBMXC739E View          LVED not found

```

Action	Explanation
...continued...	<p>3. Now you press PF3, expecting to get back to LCUINFO, the view you tried to hyperlink from. However, you do not get LCUINFO—you get LCUSTAT, which you displayed before LCUINFO because as shown in Figure 6-2, LCUINFO is still on the window information line, even though LCUINFO data is not displayed. As far as MAINVIEW is concerned, you are still in LCUINFO, so PF3 displays the view before LCUINFO: LCUSTAT.</p> <p>Press Enter instead of PF3 to return to LCUINFO.</p>

## Performance Declines in ASU Mode

If CMF MONITOR Online's performance seems to degrade when you are in automatic screen update (ASU) mode, try the solutions in the following table:

Action	Explanation
Minimize the number of rows in each view through the use of filters.	<p>Every <i>nn</i> seconds (the number of seconds specified on the ASU command), CMF MONITOR Online collects, sorts, filters, and calculates values for every row in every view. The fewer number of rows, the less work required of CMF MONITOR Online.</p> <p>For example, rather than updating the entire LCUSTAT view, use the CUSTom command to enter the view customization facility and establish a filter so that only the rows containing relevant information are visible—say, ServiceTime &gt; 10.</p>

Action	Explanation
Specify a value of 15 seconds or more on the ASU command.	If you give CMF MONITOR Online more time to perform the same amount of work, the strain on performance is naturally reduced. Realtime views should not enter ASU mode with a value of less than 15 seconds, since realtime data is not updated more often than that.
Lock views that cannot be updated. The VIEWS view, SCREENS view, or any view in historical mode should be locked.	ASU updates only unlocked windows. When CMF MONITOR Online tries to update windows that are ineligible for updating, performance is degraded unnecessarily.

## Color Graphics Terminal Does Not Work Properly

If you see only a subset of colors on your color terminal, try the first four actions in the following table. If reverse video does not appear, try all five actions.

Action	Explanation
Ensure that you are on a controller that supports graphics terminals.	N/A
Find a terminal that is identical to yours and see if it is working properly.	N/A
<ol style="list-style-type: none"> <li>1. From the ISPF Main menu, select Option 0.</li> <li>2. From the <b>ISPF Parameter Options</b> panel, select Option 1.</li> <li>3. In the <b>Terminal Type</b> field, type <b>3278</b>. Check the valid terminal types listed for 3278 to ensure that you indeed have a graphics terminal.</li> </ol>	To display colors or graphics, the Terminal Type field must contain a value of 3278, which indicates an <i>extended capability</i> terminal.
Verify that the LOGMODE for your 327x terminal defines the terminal as graphics-capable.	Check the IBM publication <i>VTAM Resource Definition Reference</i> for an explanation of the LOGMODE definitions that permit graphics display.
<ol style="list-style-type: none"> <li>1. From within a MAINVIEW session, type <b>MVP</b> in the <b>Command</b> field to display the MAINVIEW Parameter Editors panel.</li> <li>2. Select Option 2 - DISPLAY.</li> <li>3. If <b>Y</b> is specified in the Show graphic? field, change it to <b>N</b>.</li> </ol>	<p>When the Show Graphic? field is set to Y, graphs are represented by the character that appears in the Graphic Fill field.</p> <p>If you want reverse video instead of a character display, you must change Y to N.</p>

## Attn Key Does Not Work

If you have to press the Attn key twice to exit automatic screen update (ASU) mode, chances are you have a non-SNA terminal.

Try pressing Reset, and then PA1.

## ‘Screen Def Not Found’ Message

If you select a product from the MAINVIEW Selection menu and MAINVIEW is trying to display a screen definition that does not exist, you will see a screen that is similar to Figure 6-3:

**Figure 6-3 SCREEN DEF NOT FOUND for Screen Definition MAK1**

```
10JUN2003 01:45:00 ----- INFORMATION DISPLAY -----SCREEN DEF NOT FOUND-
COMMAND  ==>                                     SCROLL ==> PAGE
CURR WIN ==> 1          ALT WIN ==>
T1 =====
```

To verify that this is indeed the problem:

- Step 1 In the **Command** field, type **MVP** to display the MAINVIEW Parameter Editors panel.
- Step 2 Select Option 2 - DISPLAY.
- Step 3 Note the screen definition name that appears in the Initial screen field. The problem is that none of the data sets allocated to the DD name BBSDEF contain a member by this name. (BBSDEF was established during customization. It is the DD name for your screen definition library.)

There are two ways to solve this problem:

- Create a screen definition by the same name as what is in the Initial screen field.
- Blank out the Initial screen field. If you choose this method, the EZM390 view is displayed by default.

As an alternative, you can also display a customized screen definition for each MAINVIEW product upon initialization. To do so, create a screen definition by the same name as the product you are trying to initialize, as shown in the following table:

For this product	Name the screen definition
MAINVIEW for OS/390	MVMVS
CMF MONITOR Online	CMF
PLEX MANAGER	PLEXMGR

Specify the screen definition name in the Initial Screen field.

## There Is No Data Available for a Screen Definition

If one of your screen definitions contains a view that always displays the message: There is no data which satisfies your request, even though this does not occur when the view is displayed from the **Command** field, try the solution in the following table:

Action	Explanation
Create the screen definition again, this time carefully selecting the parameters you want for each view.	<p>When a screen definition is saved, the parameters currently in effect for each view are also saved. That is, if you display JFLOW J*, and then save that view as part of the screen definition JOBS, the next time you display JOBS the JFLOW view will display only those jobs starting with a J. However, if there are not any active jobs beginning with a J the next time you display JOBS, you will get the error message There is no data which satisfies your request.</p> <p>Likewise, if you arrived at JFLOW through a hyperlink from another view, and that hyperlink definition contained the parameter \$50 for the Workflow % field, JFLOW will display only those jobs with a workflow value of greater than or equal to 50% the next time you display JOBS. If there are not any jobs that meet this criteria, the error message is displayed.</p>



---

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